Council of Industrial Design

ber 1956 No 93 Price 2s 6d

Design

RARY

1956

MODERN HOUSEWARES

The 'STRATFORD' percolator in chrome plated aluminium and the set of 'SONA' power pressed aluminium stewpans are new NCJ products. The stewpan handles have been specially designed to fit the hand and the plastic lid knob is provided with a wide base disc to protect the fingers from burns. All four products have been accepted by the CoID for Design Review.

THE 'STRATFORD'
percolator 9 cups capacity Chrome plated aluminium Plastic handle and attachable stand

THE 'SONA'
stewpans New type plastic handle and disc-knob Flush fitting lid In sets of three, 6," 7" and 8"

SOLE MANUFACTURERS

N·C·JOSEPH LTD

THE ALUMINIUM WORKS, STRATFORD-ON-AVON

Design

Number 93 September 1956

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RECORD OF DESIGNERS
a free service of recommendation and introduction of designers to industry

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the world of fashion at your feet

Comment

The management of design

THE MOST MARKED development in industrial design since the war has been the growing acceptance by industry and commerce that design is neither nobody's business nor anybody's but somebody's and that that somebody should properly be a member of the board of directors. This much at least was established and unanimously agreed at the successful first international Design Congress in London in 1951.

The theme of that congress was 'Design Policy in Industry as a Responsibility of High Level Management'. So far so good. Without that conviction no real progress is likely. But having accepted the responsibility, what is top management to do in order to implement its design policy? The 1951 congress left many questions unanswered. Subsequent congresses on similar topics in several countries have failed to get much closer to the problems of putting policy into practice or to provide answers to the businessman's natural questions on organisation and method.

For these reasons the Council of Industrial Design is this month holding a second Design Congress in London on the theme 'The Management of Design', or the integration of the designer with his industrial colleagues. A report of the papers and discussions will later be available to all who are concerned with design in industry, and DESIGN will publish the main conclusions next month.

It may be unwise to write before the event, but we shall be very surprised if one of the main conclusions of the congress is not that the designer in British industry is still gravely under-rated both as a person and as a technician. In America this sometimes seems to be less often the case. We have recently talked with a group of American designers, sent by their firms on a tour of Europe, each of whom was clearly a senior and valued member of his company, consulted and listened to on subjects far beyond the authority (but not beyond the capacity) of his British colleagues in equivalent concerns.

In an increasingly competitive world in which similar raw materials and means of production are available to all, the marginal role of the designer must become of paramount importance, since the quality of design may be the only distinguishing feature between competing products, and that which will in the end tip the scales.

As the chairman of the CoID said of The Design Centre, the primary objective of the 1956 Design Congress is thus "unashamedly commercial". Busy men are justly impatient at interminable discussions of amiable abstractions. What they want, and what we hope they will get, is the 'know how' of design management.

Pointers

Design inside and out

Questions concerning a product's form or the analysis of stress set up within it are independently, and often jointly, of interest to readers of DESIGN. This year we have introduced the twin series of articles: 'Good Form' by J. Beresford-Evans (April and August) and 'Design and Stress Analysis' by L. Bruce Archer (June and July). As each author brings his series to a first climax in this issue, it is appropriate to discuss the relationship between them. Just how far are the two facets of a product, its structure and its use, inter-dependent?

Mr Beresford-Evans is concerned with aesthetic and domestic problems; he writes from the user's point of view. As he explained in his introduction to the series: "Looking at a product may not tell me much of strictly technical importance, but it will tell me several things that I need to know. Is it my style; will it fit my house and way of life? Does it look as if it will continue to interest me and be an object of pride after the newness has worn off? Has it good form?" To elaborate this outlook Mr Beresford-Evans has selected a diverse range of items, each of which demonstrates the application of different aesthetic principles.

Mr Archer is interested in the efficiency of a product and his analysis of this has raised two major comments on British industrial methods. He suggests, first, that industrial designers with an *aesthetic training*, are seldom expected to play a decisive role at the earliest stage in a product's evolution. Subsequent development, therefore, tends to perpetuate forms that are aesthetically unsatisfactory. Mr Archer has effectively disposed of the argument that this initial stage is properly the sole province of the slide rule, for he finds that the majority of designs originate from well-worn rule-of-thumb solutions, whose technical bases are not always immutable, and sometimes not even sound. Moving on to the construction of the product Mr Archer outlines in this issue three simple methods of stress analysis with which designers can check their own intuitively inspired forms. The industrial designer's neglect of these methods is the substance of Mr Archer's second criticism.

Taken together these articles give us a fresh view of product design in the factory as well as in the home. They have formed the basis of a new series of product analysis articles – to begin next year – in which the views of designer and consumer will be inter-related.

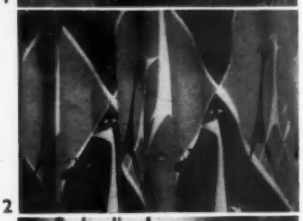
A TV presentation

Half-an-hour is a short span in which to cover all one needs to know about design, yet a BBC TV film has just attempted to do this. Although 'Design is Your Business', produced by John Read, makes use of material supplied by the CoID, its scope reaches beyond industrial design to include architecture.

The film begins with a brief sequence on the relation between craft and machine production. Then, as if to make viewers feel 'at home', there is an historical flash-back to give, in swift sequences, the outline of design changes from Elizabeth I to William Morris. Some hard things are said about 'Victoriana' until, moving up-to-date, 'Subtopian' Oxford comes in for outraged criticism. Back to the 'twenties, we are introduced to the 'Gropius idea', and then to our own modern schools, London Airport, the Leofric Hotel and some flats. Personalities who comment during the film are Sir Gordon Russell, as a prelude to a camera tour of The Design Centre; Peter Shepheard, talking on the architect's role; Robin Day, giving useful pointers on Eames and Hille chairs; and Jack Howe, analysing a vacuum flask from the user's point of view.

If each sequence, especially the latter ones, were expanded and shown in a TV series – perhaps 'live' with people and products – viewers might see that design itself is not so congested as 'Design is Your Business'.

1



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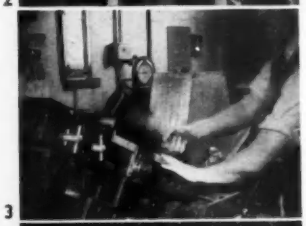

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'Stills' from 'Design is Your Business':
1 *Royal College of Art, textile department.* **2** *Printed fabric designed by P. Werthmuller for Haworth's Fabrics Ltd.* **3** *Bending chair backs, Furniture Industries Ltd.* **4** *Radiogram Mark III with Pye receiver, Alfred Imhof Ltd.* **5** *Lamp shade designed by Bernard Stern for Rotaflex (Great Britain) Ltd.* **6** *Vacuum jug designed by Jack Howe for Roanoid Ltd.* **7** *Tableware designed by D. Queensberry for Crown Staffordshire China Co Ltd.*
(All photographs: B B C copyright)

REGISTRATION

The infringement of registered designs is a subject of great concern to many manufacturers and designers, and particularly to those who have spent much labour and money on the development of advanced and original work. The type of protection for industrial designs which is available under the law is therefore described below, and is further illustrated by cases which have come before the courts. But the law as it stands has often been criticised and the author contributes his personal views on its effectiveness in action. Readers are invited to comment on these criticisms and to put forward their own opinions on this controversial subject.

Legal protection for industrial designs

BARRISTER AT LAW

THE TYPE OF PROTECTION with which we are concerned here is that afforded by the 'Registered Designs Act 1949', to the designer or manufacturer who wishes to protect himself from the production of another object of similar appearance. This act, for brevity, will be referred to as the Act of 1949. The protections granted by the Patent, Copyright and Trade Marks Acts, and other similar acts, to inventions, works of art and trade marks are outside the scope of this article, and are referred to only for the purpose of comparison.

Right of property

When an Act of Parliament is passed it generally indicates that previously the common law was in some respects inadequate. For many years the common law has recognised that it is wrong for anyone to mislead the public into thinking that his business or merchandise is that of another. Such conduct is termed 'passing-off'. Not until comparatively recently, however, did Parliament intervene to give the victim a right to act against an infringement of his monopoly, though previously compensation was provided for damage done to his business. A system of registration for designs was introduced at the beginning of the Victorian era, and there began to be created a 'right of property' in designs. The early protection was limited both in scope and duration and it is only since the latter half of the nineteenth century that any real advance has been made in the protection of industrial designs, culminating in the Act of 1949. The existing law provides for the registration of new

designs, the granting of protection initially for five years and, if application is made, for two further periods of five years.

The proprietor

The person to whom registration is granted is termed the 'proprietor', who is usually the author of the design or in some cases the person for whom the design is executed for payment – in other words either the designer or the manufacturer, depending on the individual contract. Unless the person applying for registration can show that he has acquired a right to the design itself, or a right to apply it to the article in question, he cannot qualify as an applicant. For example when the sole agent in the U K of an American toy manufacturing company applied with the company's consent to register the designs of three of the toys he was selling, it was held that the agent could not apply for registration because he had neither acquired a right to the designs themselves nor a right to apply them to the articles in question.

What can be registered?

For the proprietor to be able to register a design it must possess features of shape, configuration pattern or ornament applied to an article by any industrial process or means, being features judged solely by the eye. Methods or principles of construction, or features of shape or configuration which are dictated solely by the function which such article has to perform, cannot be registered. The design must also be new and original, which could not be said of a design which was the same as, or differed only in immaterial details or in common trade variants from, a design already registered or in existence. A design, however, which though previously in existence has not previously been published or registered in the United Kingdom, cannot invalidate a registered design. When the question of novelty or originality is at issue (either on registration or in court) the registrar or judge must apply some standard. This standard is not just his own opinion but is the standard of the eye of an instructed person who deals in the type of article concerned, and who has learnt to appreciate distinctions which are important to such a person. It is, of course, a question of fact rather than of law in each individual case.

Registration and copyright distinctions

At first sight, some designs, such as sculptures, for which the Copyright Act 1911 would grant protection for the lifetime of the author and 50 years thereafter, would seem to be included in this definition of a 'registrable design'. However, the combined effect of Section 22 of the Copyright Act 1911 and of the Act of 1949 is, in such cases, to make the forms of protection granted under each of those Acts mutually exclusive. By the provisions of those Acts, the type of protection to which any such design is entitled depends upon the use to which it is put, or to which at the time of its creation it is intended to be put. Broadly speaking if the design is used or intended to be used as a model or pattern for commercial multiplication, and if it is in other respects registrable, it is entitled to protection under the Act of 1949 and not under the Copyright Act. If on the other hand the design is not so used or intended but is rather a work of an artistic character, it is not entitled to protection under the Act of 1949, but may be entitled to protection under the Copyright Act.

Board of Trade rules

With this distinction in view Section 1 (4) of the Act of 1949 empowers the Board of Trade to make rules, excluding from registration under the Act of 1949, designs

applied to articles which are primarily literary or artistic in character. In 1949, the Board of Trade made rules excluding on this ground, from protection under the Act of 1949, works of sculpture, unless intended for commercial multiplication, wall plaques, medals, bookjackets, calendars, greeting cards, dressmaking patterns, stamps etc, which would therefore qualify for protection under the Copyright Act. Further rules made by the Board of Trade in the same year excluded from protection under the Copyright Act (a) articles the design of which has been reproduced or is intended to be reproduced on more than 50 single articles not together forming a set; (b) designs which are intended to be applied to printed paper hangings, carpets, floor coverings, textiles, etc, on the ground that such articles are to be deemed models or patterns intended for commercial multiplication.

Applying for registration

Upon registration the applicant is required to state the features for which novelty and originality are claimed. Great care should be taken in such a statement, for if it is only in general terms, the protection will extend only to the general appearance of the article and will not include special features used separately. Equally, care must be taken to see that novelty is not claimed for features which are already registered or published, since the registration might afterwards be attacked on this ground.

Rights and protections afforded

The granting of registration gives to the proprietor the exclusive right in the United Kingdom and the Isle of Man to deal in, import or manufacture the registered design or a design which is not substantially different from it. This includes the right to make anything which is necessary to enable the design to be put into production. By Article 2 of the International Convention for the Protection of Industrial Property, which has been ratified by the United Kingdom, Denmark, Germany, Japan, Norway and the USA, reciprocal protection is granted to industrial designs in each of the participating countries. The type of protection granted is in accordance with the normal practice in these countries providing the formalities imposed on nationals are observed. In addition, when a design is the subject of an application for protection in a convention country, then if an application for protection in another such country is made within 6 months, protection will be granted in that country from the date on which the first application was made.

Enforcing protection

However complete the form of the protection granted, it is useless to the proprietor unless it is capable of being enforced. It is generally by an action for infringement to enforce such protection that cases involving designs come before the courts, although applicants who have been refused registration by the Patent Office can, and occasionally do, appeal to the courts.

In an action for infringement the proprietor will usually ask for an injunction to stop the unfair competition, delivery up of any offending articles and damages which will normally include the loss of profit attributable to the unfair competition. The infringer in reply will normally arm himself with both a shield and a sword. In defence he will deny that his article infringes the registered design, and in counter-attack he will assert that the proprietor's design ought never, in fact, to have been registered, usually on the grounds that it is neither novel nor original.

Four cases which have come before the courts and which illustrate the way in which the laws governing design protection have been put into practice, are reviewed on the following pages. These cases also serve as a guide to the factors which are taken into account when an action for infringement is being considered.

REGISTRATION

The law in action

In cases of design infringement which come before the courts the sort of questions which have to be considered by the judge are as follows: Firstly, would confusion arise between the two articles? Secondly, would the allegedly infringing design have existed but for the proprietor's design? Finally, is the allegedly infringing design nearer to the proprietor's than to previous designs (normally termed 'the prior art')? Four cases which have come before the courts have been chosen in order to illustrate the application of these principles.

Case 1 Cisterns

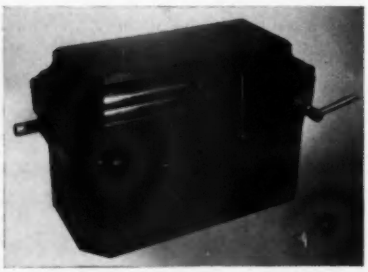
This case, decided in March of this year, is of particular interest to manufacturers since it demonstrates the advantages which have derived both from an initial decision to secure the services of an industrial designer and the subsequent decision to register the outstanding and original points of that design.

The case concerns the design of a lavatory cistern. The firm, which we will call A, produced in 1947 a lavatory cistern moulded from a bituminous plastic composition. As a result of showing that cistern (see below) at an exhibition it was strongly criticised, and from subsequent enquiries the firm asked the Council of Industrial Design to recommend a designer. John Barnes of Allen-Bowden Ltd, one of the designers recommended by the Council, produced a new design to the same basic specifications and it is this design which was the subject of the recent infringement action. During the five years this new cistern has been in production the firm claims to have expanded from a medium sized manufacturer to the largest cistern manufacturer in the world – this success being directly attributable to the advanced design of the new cistern.

It was therefore of great concern for A to protect himself from infringement since his business could well be seriously affected by the production of other cisterns of similar appearance.

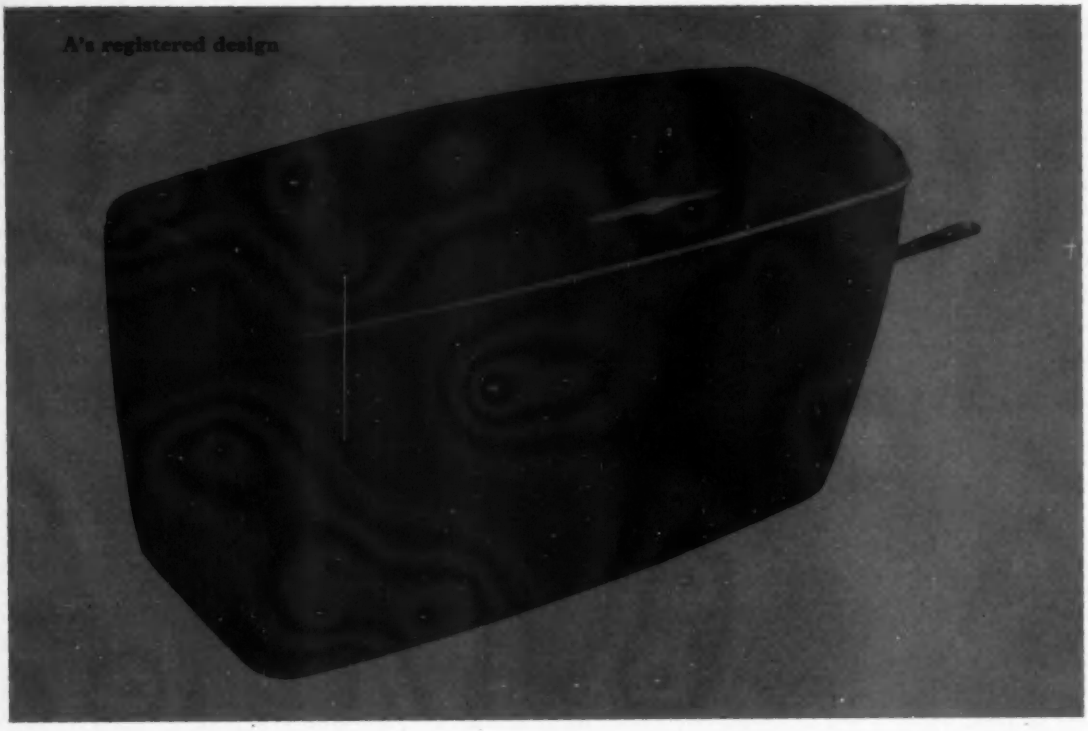
The novel features of A's design were described by the judge as the tapered and bowed front and sides of the tank and the flat back; the particular domed shape of the lid; and not least the beading at the junction of the tank and the lid so that the general impression was of a smoothly contoured

continued on page 20

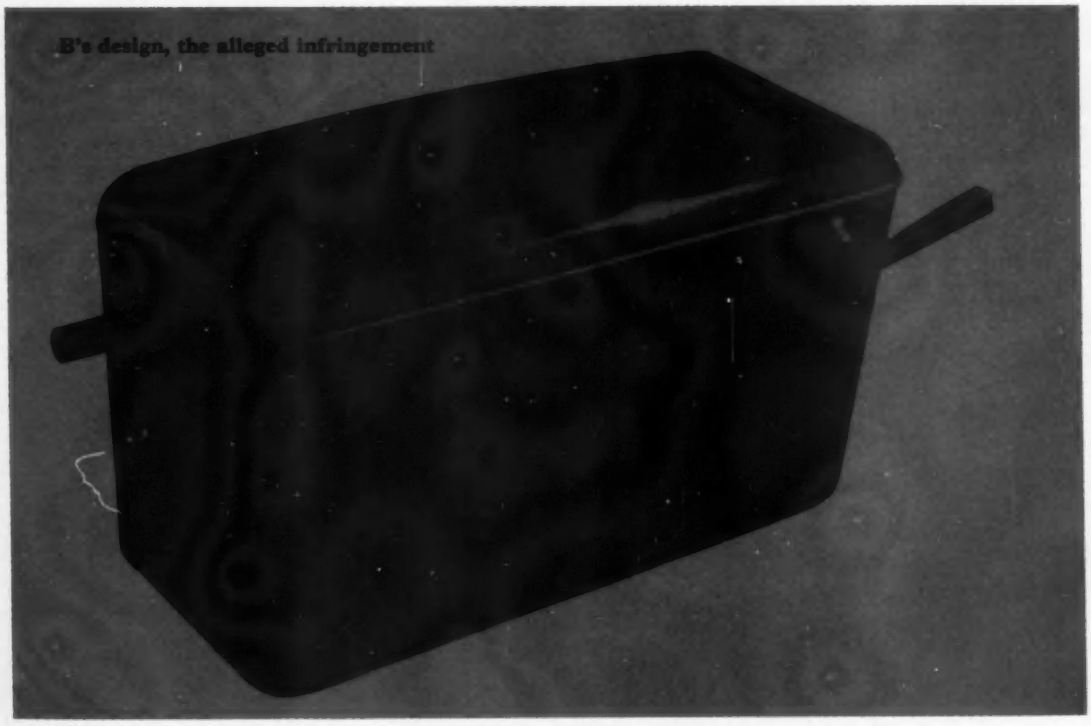


A's 1947 cistern, LEFT, *was criticised at an exhibition for its ornate, angular shape which revealed none of the qualities of moulded plastics.*

OPPOSITE PAGE, TOP *The new cistern has rounded surfaces which express the material, and a bead which conceals the joint between lid and base and also acts as a decorative trim.*

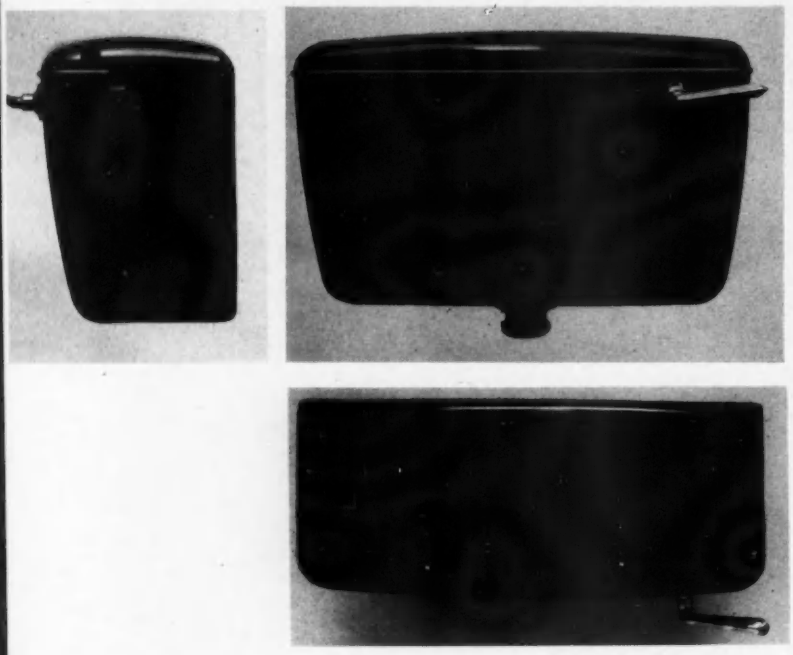


A's registered design

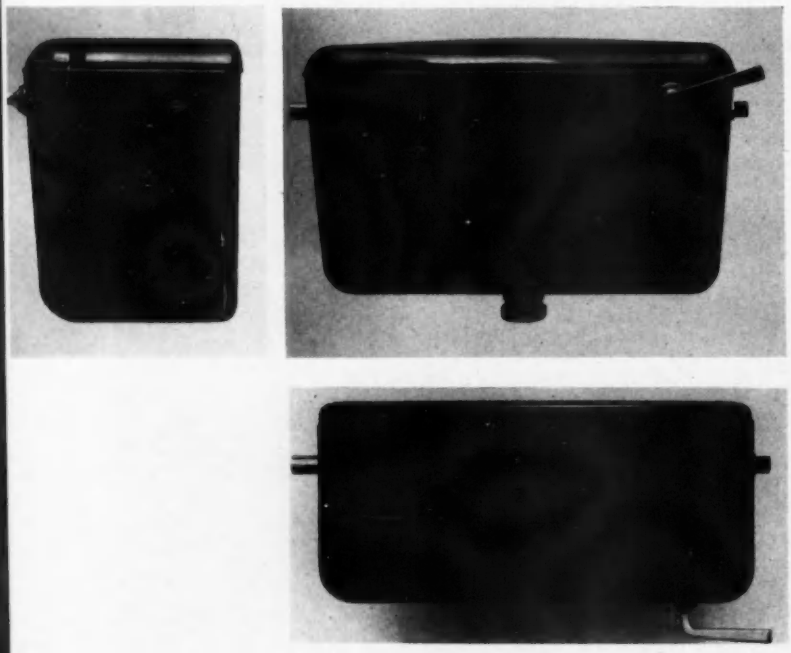


B's design, the alleged infringement

A's registered design *Side and front elevations and plan view showing the curving surfaces and tapered base.*



B's design *The judge held that from these views the two designs are markedly different, though in the perspective views the resemblance is inescapable.*



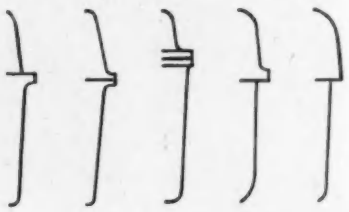
container. As it was made of a bituminous plastic composition the lid was able to rest upon the tank without a flange. A flange is often considered necessary to strengthen this joint when cast iron, porcelain or other materials are used.

B designed and manufactured another cistern, which A alleged infringed his design. B denied the resemblance, and counter-charged that A's design was not new and original at all. This counter-attack was easily repelled; for the judge said: "I have no doubt whatever that the design as registered was new and original; new in the sense that the features to which I have referred have not previously been applied in the form adopted by A to lavatory cisterns, and original because in combination they present to my eye a distinctiveness which I can characterise as noteworthy".

When he came to consider whether B's article so closely resembled A's design as to constitute an infringement, the judge stated that viewed from the front and the side the degree of tapering rendered the designs quite distinct; their plan views were also markedly different. But when the perspective views were examined over a period of time these distinctions became merged in an inescapable resemblance. The particular factor which lead to this conclusion lay in the beading; without this the resemblance was seriously affected. And so, although he awarded damages to A and restrained further manufacture by B, he did not order B to deliver up the offending articles as they could easily be rendered innocuous by the removal of the beading and its replacement by a broad strip.

Typical previous designs

The smooth contour in A's design was held to be an original feature, as in previous designs the joint between lid and base was marked by a prominent flange, as shown below.

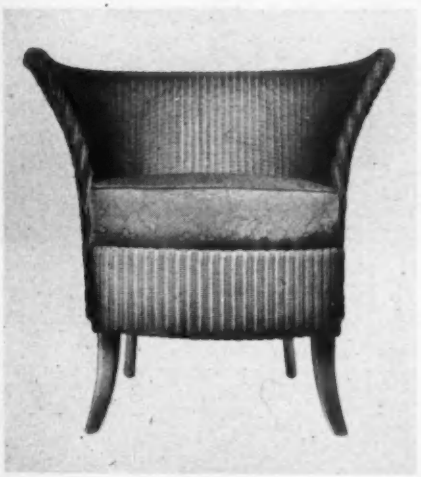


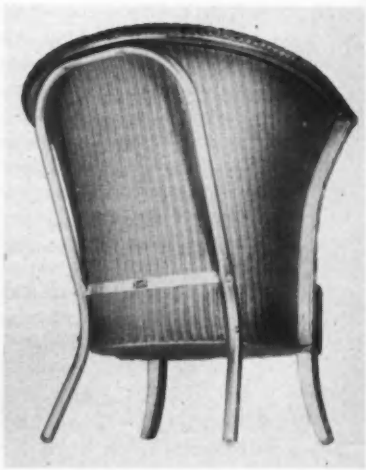
Case 2

Chairs

A chair affords another illustration. P registered the design of a chair and then alleged that a chair produced by Q infringed this design. The judge in his comparison of the rival chairs said that their back views were substantially different; on a side view the angle of the back and also the gap between the back leg support and the back itself varied considerably; so too at a direct front view there were material differences which would necessarily be appreciated by an eye that could make any claim to appreciation. Applying the proper test – the impression created on the eye by each chair over a substantial period of time – he concluded that the chairs could be readily distinguished.

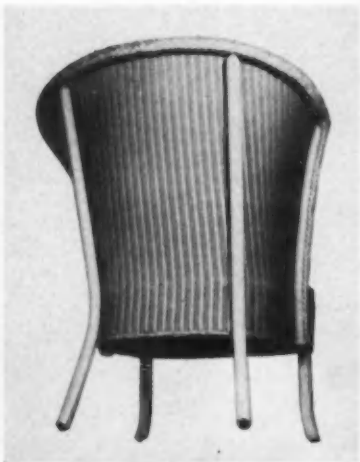
He then considered whether P's chair possessed features which qualified the chair for registration. One feature which particularly attracted his attention was the sharp corner where the top of the back terminated. Although this had been known before, he decided that it had not been previously combined with the other special features of the chair. This new combination was novel and original and thus the design was validly registered. As a result of deciding that these chairs were different, both attack and counter-attack were repelled and the result could therefore be described as a draw.





P's registered design

Q's design, the alleged infringement

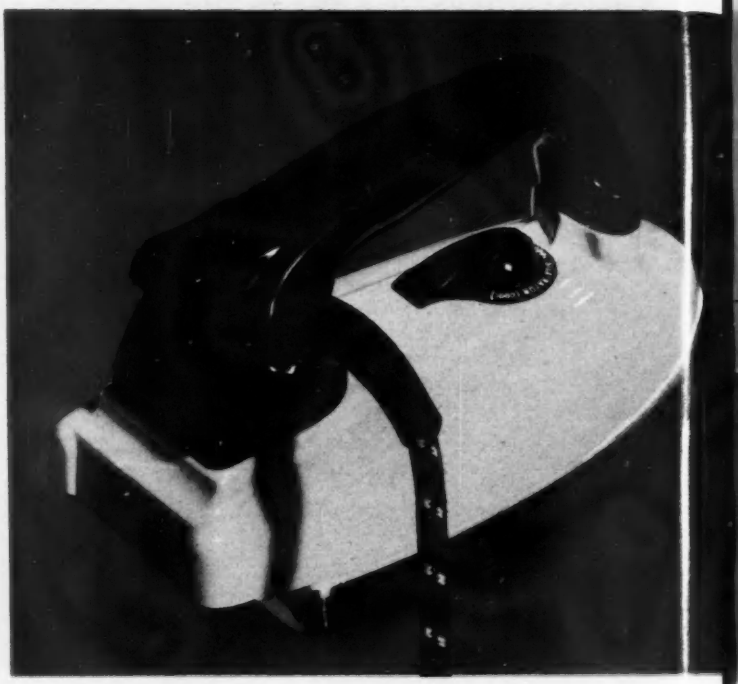


Case 3

Electric irons

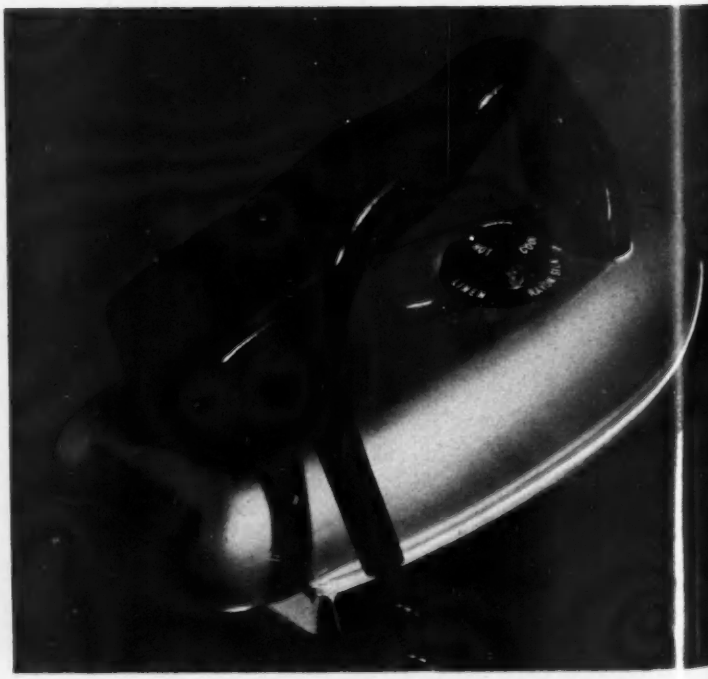
For the third illustration we turn to electric irons. K's registered design incorporated the following features: an automatic heat control, a pilot light, a 'Bakelite' handle with thumb rests, a special shape to the body, a bevelled sole plate and a side entry for the flex. L's iron, the alleged infringement, incorporated most of these features and so in spite of some differences in appearance it was held to be a deliberate imitation of the registered design.

The judge also held that K's design was novel and original; especially he noted the shape of the body. "In most irons the back portion of the upper structure overhangs the back of the sole plate. In (sic) K's model the body exemplifies a symmetrical curve running from the front of the iron to the back of the overhang. This was a novel feature. The overhang in other models had the appearance of a narrower and independant structure." He also held that the angle of the front of the handle, the thumb rests and the pilot light were original features. Thus he concluded that this design was substantially different from previous irons, and was therefore validly registered.

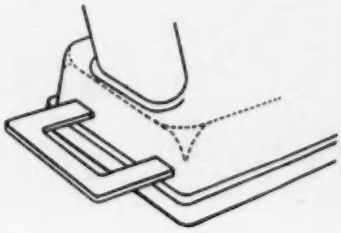


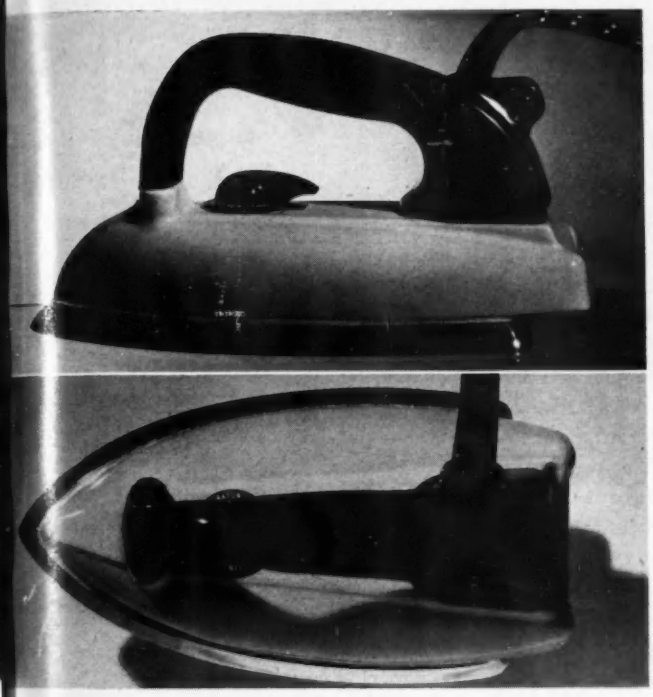
K's registered design

L's design, the alleged infringement



It was held that unlike K's iron, the overhang at the back in previous designs had the appearance of a narrower and independent structure.



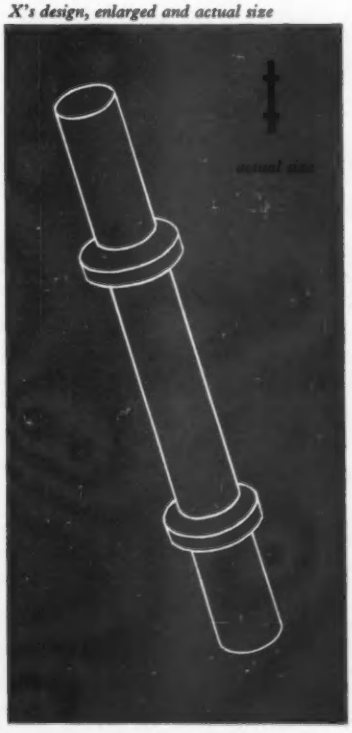


Case 4

Industrial fuses

In this case X registered the design for an industrial fuse for use in a particular type of machine. Y produced a similar fuse which X claimed was a copy of his registered design. But the validity of the initial registration was attacked by Y for two main reasons. Firstly Y alleged that this design was in fact extremely commonplace: it existed in many forms of engineering products, for example a bicycle front axle, and therefore it was not new and original. Secondly Y contended that it was a mere mechanical device as all the features of the shape were dictated solely by the functions it had to perform; and that the shape contained no features beyond those necessary for the fuse to fulfil its function. Both these contentions were accepted by the House of Lords after prolonged litigation and X's design was ordered to be removed from the register.

X's design, enlarged and actual size



REGISTRATION

Is the law adequate?

BARRISTER AT LAW

THE READER will no doubt by now either be exclaiming at the narrowness of the protection afforded or else indignant at the fetters imposed upon competition. But he should remember that the cases which come before the courts are not the obvious ones but those which lie upon the frontier between infringement and distinction. The task of the law is to reconcile these two antagonistic interests, and to decide which side should have the property in the registered design and the right to produce fresh designs. On the whole I think that the degree of similarity which the courts allow is fair, if the urge to make minor improvements is not to be stifled by the dead hand of property.

The period of protection is usually five years; only in one case out of four is a further five years sought, and only in one case out of 20 the full period of 15 years. This may show that for most articles five years protection is adequate; for at the present rate of improvement and change many designs will be superseded by something more modern in about that period. But there are undoubtedly some cases such as the lavatory cistern we have illustrated, or pottery tableware, in which the design will be in production for more than 15 years. And I think that in these cases a greater period of protection would be fair to designers without preventing the improvement of the article by others.

Some would assimilate this period to that given by copyright, which as I have said is normally the life of the artist and 50 years. But I do think there is a valid if tenuous difference between pure art and literature on the one hand and industrial design upon the other. In the one case the artist and in the other the manufacturer will generally be the beneficiary. And I also feel that the public interest, while not favouring plagiarism, does demand that industrial products be freely available without taint of monopoly. I therefore think that 25 years would represent a reasonable compromise between the various interests involved.

The other reform which I think imperative is that the procedure in bringing an infringement action should be shortened and cheapened. While petty grievances should be borne without recourse to the law, the expense, delay and uncertainty about present design actions mean that most proprietors will deem an action undesirable; and so in effect their design remains unprotected. For all the industrial activity since the war there have been only seven infringement actions fought in the courts, only three appeals against the refusal to register a design and only eight other assorted design matters before the courts. In the usual infringement action the *appearance* of the registered design and alleged infringement are the main matters involved. I think that it should be possible to decide this within a day (the cistern case took five days). The number of witnesses should be limited and the approach now adopted, which conforms to actions brought under the Patent Act, abandoned; and if the High Court is unsuitable, then a specially qualified tribunal could be appointed.

In these ways I believe that protection could be afforded for industrial designs which would be adequate for current needs.

As an island race, we in Britain will usually respond to criticism of the ships and services we have to offer. Very recently the ship owning and ship building industries have been faced with charges that Britain is not building ships of tomorrow, or even today, but of yesterday. Why should this be so? This article sets out where we stand and points to a remedy for one part of the charge – that the internal appearance of British ships today is an uncreative element in our great nautical tradition.

Where are we sailing?

PETER HATCH

BRITAIN HAS IN THE PAST pioneered in naval architecture and marine engineering. We have had the lead in many technical branches of the industry for a long time and our research and inventiveness have paid good dividends. Now our ship builders are again facing competition from yards in other countries. In a recent leading article the 'Shipbuilding and Shipping Record' asks "Are British liners as technically advanced as they might be? It is possible that ocean liner design follows the obvious path too readily: it is so safe, so natural to model each vessel on her predecessor . . . ." The conservatism we see here is too often expressed in the appearance of the ships.

Britain still builds and owns more passenger ships than any other nation. Our ships serve and have to appeal to the preferences, ideas and tastes of many different nationalities although any one ship is usually designed and built to serve a specific trade – North Atlantic, the Cape, Pacific coast of South America, etc. They are built to work an economic life of 25–30 years, and during their lifetime will 'show the flag' to tens of thousands of passengers every year. The impressions left by these ambassadors at sea are vital in our export economy because they are taken as representative of the best in British ideas and taste. For this reason it is important that British ships should reflect the most advanced developments in design and construction.

More than three-quarters of the area of a passenger liner – the upper decks, the funnels, swimming pools, public rooms, pantries, etc – has to be designed down to the last arm chair and ash tray. It is axiomatic that British ship owners want the finest ship their money can buy, but how is it that the design of exteriors and interiors falls far short of ships of other nations? Only too often, to quote one recent brochure describing a passenger liner, British owners are seeking "to recreate the past in terms of the present by using modern methods of construction to interpret some of the gems of historical interior design and decoration". Clearly such an approach, which finds nothing

incongruous in a Palladian hall set in the midst of a modern passenger liner, does little to express the spirit of a modern industry.

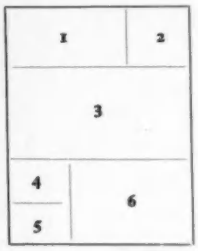
Need for design co-ordination

With the many new materials and technical advances, naval architects, marine engineers and designers are now more than ever concerned with the *whole* ship, for the contributions of each are largely inter-dependent. Yet, these experts do not seem to get together soon enough at the planning stage, and the results often appear to lack the co-ordination of thought, the unity of style which is so necessary in a large, single undertaking. Even in merchant ships, the design of officer and crew quarters needs careful study, for recruitment to the merchant service is becoming increasingly difficult. Scandinavian ships, long renowned for their high standard of crew accommodation, have set an example which ship builders elsewhere would be wise to follow.

As a rule, the naval architect has to provide the answer to the owner's requirements for passenger and crew accommodation. He produces scale drawings to show where the public rooms and cabins, services and sun decks will be located. With these drawings, the ship builders and furnishing contractors will have the opportunity to tender for making, fitting and decorating all that is needed for the comfort and service of the passengers, officers and crew for a period of between 25 and 30 years at sea: a simple statement, involving a vast amount of preliminary work. But it is not unknown for the builders or their sub-contractors to have only *three or four weeks* to prepare and cost the work for submission to the ship owners. Frequently the owners themselves will share out the work among several contractors as well as the ship builders, so that each, in isolation, submits schemes for his allotted part of the ship. A contractor who secures the job often finds that his work is located alongside that of another with quite different ideas and tastes. Under these conditions it is not possible for a ship to become a well designed entity.

British built ship for Norway

A worth while example of imaginative thinking and planning has been given by the Norwegian owner, Hans Christian Henriksen, his naval architect Kaare Haug, co-ordinator and interior architect Arnstein Arneberg, and the British ship builders Swan, Hunter and Wigham Richardson Ltd, which designed and built the Norsk America Line passenger liner 'Bergensfjord'. They started work as a team at the beginning, and some of the sub-contractors had their brief four years before completion. They continued to work as a team under the



1 Norway *M.S. Nordstjernen. Bergen Line. 2,200 tons. Coastal traffic. Architect Hugo Kaltenborn. Murals Paul René Ganguin.*
In the observation lounge carved wood murals applied to plain wall surfaces add a decorative nautical touch. Floor treatment is a simple but good all-over pattern. Concealed lighting gives illusion of higher deck head.

2 Germany *M.S. Göttingen. Hamburg-America Line. 6,215 tons. North Atlantic cargo/passenger traffic.*
Architect Edgar Horstmann.
A first class cabin where nautical tradition is preserved in the window; curtains add a strong decorative feature and make cabin appear larger. Sofa-bed is adjacent to working surface with hinged flap.

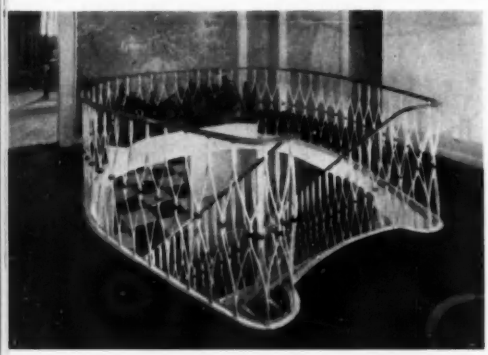
3 Italy *S.S. Andrea Doria. Italian Line. 29,100 tons. Europe-South America traffic. Architect Gustavo Pulitzer.*
The first class observation lounge was spacious by good use of concealed lighting and extensive decked floor. The ceramic murals added colour, interest and humour. (Ship sunk after collision, July 1956.)

4 Denmark *M.S. Kronprinsesse Ingrid. The United Steamship Co Ltd. 4,000 tons. North Sea traffic.*
Architect Kay Fisker.
This small friendly bar in the first class makes no excuses for being nautical. There are large portholes, warm leather ceiling and wall covering with contrasting leather for chairs and stools. Recessed stainless steel kicking plate, bar and stool supports are good foils to the mahogany bar.

5 Greece *T.S.S. Olympia. Greek Line. 23,000 tons. North Atlantic traffic. Architect Theodore Alexander. Murals Dorren Nobel.*
The tourist class children's playroom has excellent murals of plastics laminate, gay inlaid patterns in lino floor covering, and furniture for infants and adults. Not shown are equally well designed miniature shop, child's size lavatory and washroom.

6 USA *S.S. Independence. U S Lines. 26,000 tons. North Atlantic traffic.*
Designer Henry Dreyfuss.
Bedroom in a first class suite with an awkward shape improved by the simple, restful treatment. A large mirror, built-in furniture with recessed handles and sliding textile screens reveal or conceal portholes as required.

7 Norway *M.S. Bergensfjord. Norwegian America Line. 17,500 tons. North Atlantic traffic. Architects Arnstein Arneberg and Finn Nilsson. The crew cafeteria: plastics laminate wall facings, small tables, banquettes and chairs, dividing screens and white acoustic tile ceilings. A good example of Scandinavian concern for the crew.*



8 Greece *M.S. Spyros Niachros. Neptune Tanker Corporation. 30,000 tons. U K-Middle East oil traffic. Consultant designer Mollie Hindley. Mural Sergi Rodzienko. Hall and stairs in the officers' accommodation. Decorative banisters and rail with mural on the wall add a gay touch to the clean colours in the interiors. The officers' lounge beyond provides a reminder of home rather than hotel.*

added complication of having a base in Norway as well as in Britain. The main engines are Dutch, the air conditioning Swedish, the furniture Norwegian, Swedish, American, British and Danish, laminated plastic sheet Swedish, decorative stainless steel Norwegian, and so on – all put into a British built ship in a British yard. Yet forward planning has enabled these diverse elements to be brought together in a way which does not reveal a conflict of national styles. The interiors have many excellent features, though the exterior is less interesting.

There are the exceptional British ship owners, too, who appoint a designer to co-ordinate the appearance of the interior of a ship. At all stages he is expected to co-operate fully with the naval architect. Yet, this procedure involves considerable risks. As Sir Colin Anderson has said: "We are tempted to play for safety over what we may feel to be avoidable risks, and one of these is the risk of putting ourselves into the hands of an unknown decorator or architect . . . . We suspect that he will be an extra nuisance and responsibility, even if he doesn't let us down by being unpractical and refusing to listen to our sage advice based on long experience in the upkeep of ship furniture and decoration. To make the decision that such an extra complication shall be added to the exceedingly complex task of getting a large passenger ship completed is, in itself, quite daring. So much for the background. The foreground is plain. Those who *have* taken this step, and made a successful choice, have got a far more attractive ship than those who have been content to go on getting the familiar series of Mark I ship interiors 'brought up-to-date' with new colours and fabrics".*

Designers for the future

Where could the British ship owner and ship builder turn if he decided to employ a co-ordinating designer for the appearance of his vessel? To the handful of first class decorators or even fewer architects who have had experience of working with ships? Wherever you look the choice is not wide, but without the initial encouragement from the owners and builders we shall never develop a modern-minded and competitive group of architects and interior decorators specialising in ship work. The colleges and schools of architecture and art have made no noticeable effort to develop this field of training. Surely it is clear that those ship owners and ship builders who have taken the risk, and go on taking the risk of using co-ordinating architects and designers for their ships, are satisfied, but what about the others? A shipping correspondent has reported that an executive of a well known company when asked if he had seen the latest ship of a rival company said: "Why should I – they can't teach us anything". Such reckless thinking can only end in disaster for British ship owners and ship builders.

Where are we sailing? A light on the horizon is the knowledge that a leading shipping line is enquiring for modern architects suited to the task of co-ordinating the exterior and interior of new passenger liners. This is a step forward that all British ship owners and builders should watch very closely.

*Letter to the editor of 'Shipbuilding and Shipping Record' April 26, 1956. Sir Colin Anderson's own company, the Orient Line, has employed the services of a co-ordinating architect - Brian O'Rorke - for the last 22 years and set an example that has been followed by ship owners overseas, but seldom in Britain.

DESIGN AND STRESS ANALYSIS 3

Photo-elastic analysis of the stresses within a loaded hook, taken from the research of H. L. Cox, senior principal scientific officer, National Physical Laboratory.

Analytical methods for product designing

L. BRUCE ARCHER

AUTOMATION AND MECHANISATION are very much in the news. They will probably remain major topics of discussion for at least a generation. To the product designer, however, the emergence of the production engineer as a dominating figure has been neither sudden nor recent.

For 40 years the technology of production engineering has been developing at an increasing pace and has now completely outstripped the technology of design. The demands of the production engineer upon the designer have become more and more insistent, and consideration for ease of production has come to dominate all the other aspects of product designing.

In order to restore the balance it is important that more research should be devoted to the development of some of the other facets of design. This series of articles deals mainly with the structural aspect: that is to say, with ensuring that the product in all its components is capable of standing up to the loads which can be expected to be imposed upon it.

Just as the production engineer has achieved resounding success by seizing upon electronics and other advanced sciences and forging them into simple tools for his trade, so it is possible for the product designer to improve his technique by adopting and simplifying methods which were originally developed for more urgent applications.

For example, it is quite easy to adapt photo-elastic and other techniques, used by the aircraft industry in the determination of stresses in aircraft structures, to the task of ascertaining the structurally correct proportion for the components of every-day products. It is not suggested that designers should be encouraged to reduce the fabric of all their products to the spider-like structural minima. *It is, however, most emphatically suggested that a product designer cannot effectively balance the competing requirements of function, appearance and production unless he knows what the mechanical and structural limitations of his design are likely to be.*

The object of stress analysis

Broadly speaking, the layout of a product is fixed by functional and mechanical considerations, so that structural analysis consists mainly in seeking out weak points and determining the minimum cross-sections which can safely be used at any point. A structurally perfect

Analytical methods for product designing

Aluminium-framed settee designed by D. Lee DuSell.

Photo-elastic analysis of demonstration model roughly equivalent to the under-frame of the DuSell settee. Analysis by Dr B. J. Zaczek.

design would have no weak points. The stress would be uniform throughout the product. The presence within a product of areas of high stress concentration or the existence of a steep stress gradient between one area and another means that failure is likely to occur under conditions of shock, overload, or fatigue. The identification of areas of stress concentration is the main object of stress analysis. From the information thus derived the designer can learn many things. He can assess the strength of the product as originally set out; he can predict where failure is likely to occur and at what loads; he can judge the probable effects of proposed variations; he can eliminate weaknesses; and he can evolve the structurally ideal bones upon which to hang the flesh of refinements intended to make the product more effective, more beautiful or easier to produce. (See DESIGN June pages 12-19; July pages 31-35.)

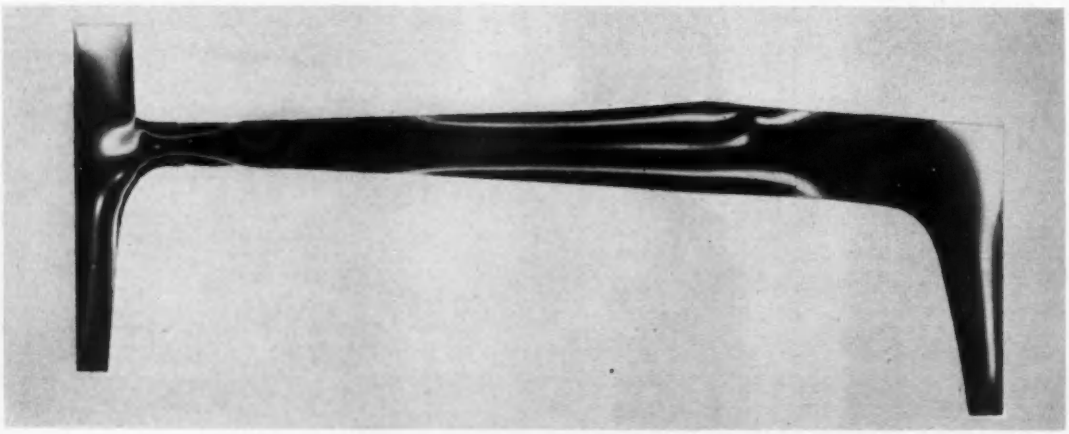
Experimental methods

Fortunately, there are in existence several experimental methods by means of which much of the mathematical theory can be eliminated from the practical application of stress analysis. The designer of ordinary consumer products is concerned with the relative merits of shapes and the *distribution* of stresses rather than with the measurement of ultimate breaking loads, and for him the mathematics can be dispensed with altogether. For example, in the design of a piece of furniture similar to that in the accompanying illustration, left, the photo-elastic method might be used.

Method 1 Photo-elasticity

A scale model of a suitable cross-section of the design can be cut from a sheet of special transparent material such as 'Bakelite' BT 61 893, 'Catalin' 800, or 'Celluloid'. This model can then be subjected to loads similar to those which the chair is expected to experience in service. If the model, still under load, is examined under polarised light it will be seen to be covered with rainbow-like bands of coloured light; see illustration below.

These bands are known as 'fringes' and can be read in the same

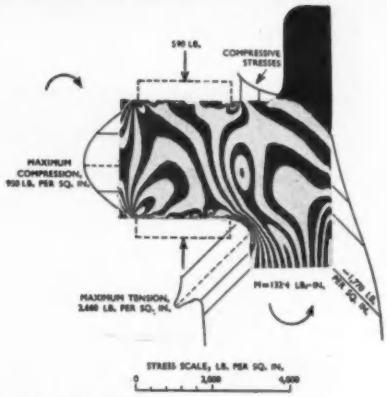


manner as height contours on a map. All points on a given fringe are subject to the same stress, and the number of fringes occurring between two points indicates the difference in their stresses, or the stress gradient between them. A measure of the stress at a given point can be obtained by counting the fringes occurring between that point and one known to be subject to no stress at all.

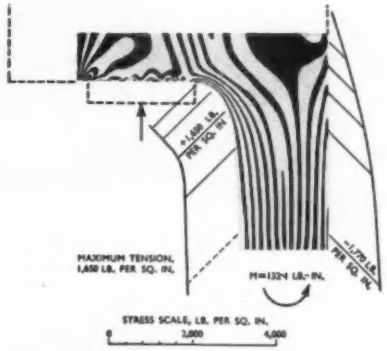
Although the transparent model under load will distort rather more than would the actual chair, the *distribution* of stresses will follow exactly the same pattern in the photo-elastic model as it would in steel, aluminium, or any other homogeneous material. Physicists would use a mathematical formula to convert the measurement of stress in the photo-elastic material to its equivalent in steel, etc. The product designer, however, is usually satisfied on finding out where the areas of maximum stress are located. His actual design can be improved by shaving the edges of the model and repeating the experiment until the stresses are as nearly uniformly distributed as desired. In an ideal design the fringes would be few and would run parallel to the edges of the model.

The photo-elastic picture, right, top, shows a portion of an engine cylinder liner with a conventional plain radius in the corner which gives rise to an undesirable stress concentration. The picture, right, below, shows how a quarter-elliptical corner fillet gives a beautifully uniform stress pattern. The figures were calculated from the fringes as indicated by the superimposed stress-graph, and show that under identical loading conditions the elliptical fillet reduced the maximum stress from 2660 lbs per square inch to 1650 lbs per square inch.

The photo-elastic method is becoming more and more popular, largely because it provides a low cost method of accurately assessing the performance characteristics of a design *before* a prototype is constructed and without destroying anything. It is at its most effective when the shape of the object to be analysed is predominantly two dimensional, as in the case of the chair. It would also be admirable for a design such as this table, where the designer seems to be trying to achieve a light and logical effect. When the object is sculptured in three dimensions the photo-elastic method can still be used but

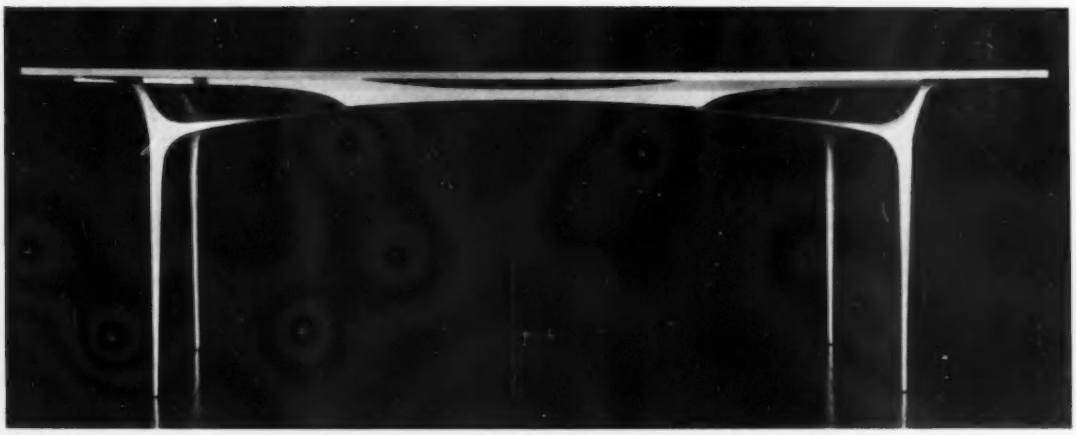


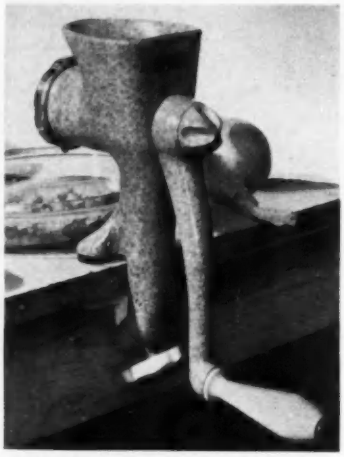
Section of internal combustion engine cylinder liner, showing excessive stress concentration, particularly of the lower corner when placed under load.



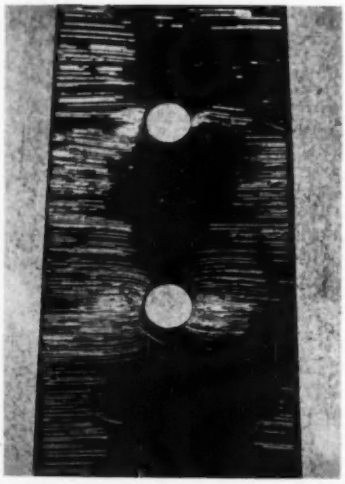
Under similar load the modified design of the lower corner fillet shows a reduction in stress concentration. The upper corner is not shown. For origins of both examples see p 33.

The designer here appears to be trying to achieve a light and logical structure in the table's aluminium under-frame. Would a stress analysis test confirm this ? Designed by D. Lee DuSell.





Models of several cross-sections of this mincer would be necessary in order to make photo-elastic analysis. Mincer designed and made by John Harper & Co Ltd.



An alternative method of stress analysis makes use of lacquer sprayed on to the design. When under load the lacquer develops cracks perpendicular to the tensile strain imposed. This technique would be suitable if applied to a model of a product like the mincer. Demonstration model by Dr B. J. Zaczek.

Graphical analysis, as applied to this lavatory basin, shows the bending moments when the product is under load. Demonstration analysis by Dr B. J. Zaczek.

it involves the preparation of models of several cross-sections whose analyses require inter-evaluation.

Method 2 Brittle lacquer

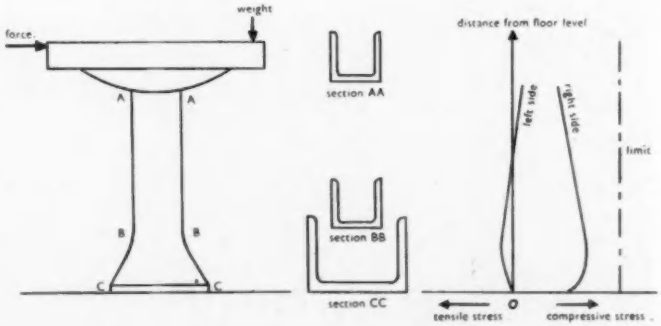
This mincing machine is such a case, and for the design of a product similar to this the brittle lacquer method might be more practicable. This technique demands the use of a fully three dimensional model of the product, made from a slightly elastic material. Steel, wrought aluminium and many other materials are sufficiently elastic so that in most cases the product itself can be used. Cast iron and cast aluminium and many plastics are too brittle to be analysed very easily. The model is sprayed with a special lacquer and is put under load. The lacquer develops visible cracks, each of which lies perpendicular to the tensile strain giving rise to it. For compression stresses the object is sprayed whilst under load, and the cracks develop as the load is removed. The region where cracks first appear, their direction and their quantity, all reveal an easily recognisable stress pattern. The brittle lacquer method is particularly useful for small and complex details.

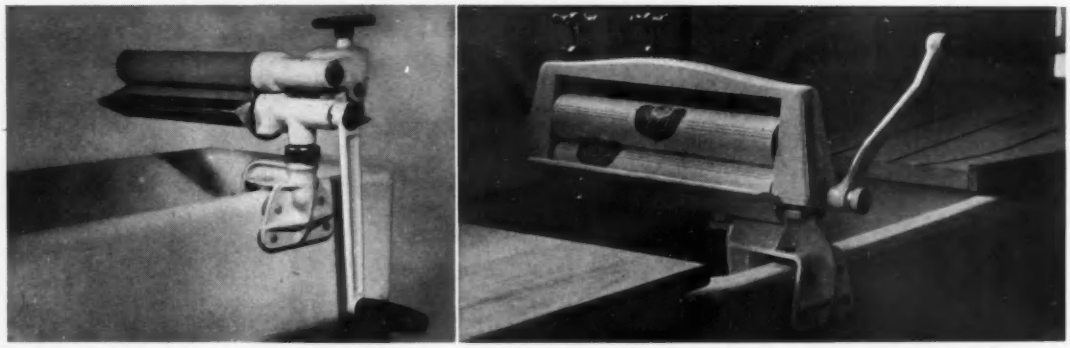
There are several other experimental and analogical methods of stress evaluation, some of which will be described at greater length in later issues of DESIGN. One of these, suitable for sheet metal and plywood products, makes use of rubber marked off into equal squares; another, suitable for irregular shapes under torsional loads, makes use of a soap bubble on a wire loop similar in outline to the cross-section under analysis. Yet another uses electrical circuits in which the mechanical qualities of the design such as velocity, stiffness, inertia, and torque are represented by electrical qualities in the model such as volts, inductance, capacitance and amperage.

Method 3 Graphical analysis

In addition to the experimental methods there are graphical methods for the evaluation of stresses. For example, take the case of the design of a porcelain lavatory basin (see illustration below). Ceramics can only withstand compression loads, having very little tensile strength.

The bending moments at various points are plotted on a graph in





Is the structural design of the clamp on these wringers so perfect and so immutable that it must remain unchanged over the years? The accompanying article raises the question in order to suggest the wider use of stress analytical tests as an aid to designers generally. Wringer, left, designed, 1946, for Parnall (Yate) Ltd; right, designed, 1952, by H. A. Y. Nutt for Nutt Engineering Co Ltd.

which one scale represents a feature of the product (in this case, the height from the floor) and the other scale represents the loading. Wherever the load-curve crosses the zero from compression to tension a source of weakness is detected. In this case it can be seen that although the pedestal is amply broad at the top and is just adequate at the floor, the lower half of the pedestal should have been wider.

Race for efficiency

These and other techniques were created for use in the design of aircraft, boilers, and other critical products, but some workers, notably Dr R. B. Heywood of the Royal Aircraft Establishment, have been developing them to a stage where they have become readily manipulable by designers and engineers rather than by physicists and metallurgists. Most of the universities and many research establishments possess facilities for design research on these lines. Surely it is no more outrageous to expect product designers to master and make use of these techniques, than it was to expect production engineers to adopt atomic radiation as a means of measurement and electronic brains as process controllers?

Faced with a design problem the British product designer quite rightly examines the designs already on the market. When he finds something upon which to base his design he is often severely inhibited from making substantial changes in form because he is afraid to depart too far from what was known to be satisfactory before.

Even an adventurous designer is often overawed by people on the manufacturing side, largely because he does not command an array of technical facts about his proposed design with which to combat the arguments of the production engineer. Consequently, design features are often unjustifiably perpetuated throughout the history of a series of products. Is the structural design of the clamp on these wringers so perfect and so immutable that it must remain unchanged over the years? How much greater scope would the designer of any product have if, by means of one of the analytical methods just described, he knew exactly where the weakest spots were, and how much material could be pared off the lightly stressed areas? A revolution of approach such as this is necessary if Britain is not to be left behind in the race between the already more efficient designers of the USA and the USSR.

Acknowledgments

The author wishes to record his gratitude to Dr B. J. Zaczek, lecturer in charge of research at Battersea Polytechnic, for advice on analytical methods and for the preparation of demonstration material.

The stress diagrams on page 31 are reproduced from 'Modern Applications of Photo-elasticity' by R. B. Heywood: proceedings of the Institution of Mechanical Engineers, 1948. See also 'Designing by Photo-Elasticity' by R. B. Heywood, Chapman and Hall, 1952.

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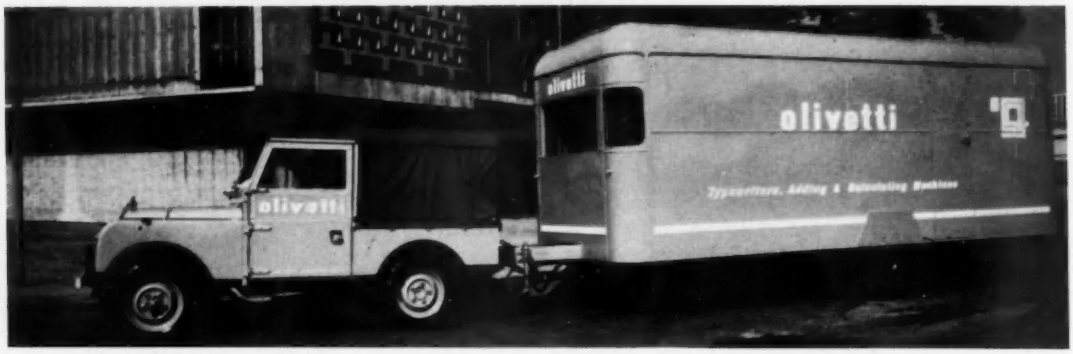
Typewriters on tour



▲ *The showroom, photographed here before the official 'opening' at The Royal Festival Hall, was designed by Misha Black and William Apps of Design Research Unit.*

BRITISH OLIVETTI LTD believes that there is now a definite market for office equipment in country districts, and in order to introduce its typewriters and calculating machines to the farmer, the shopkeeper and the business man in rural areas, the company has fitted out a caravan in the form of a mobile showroom. This summer the caravan has been touring country markets and the important agricultural shows, including the 'Royal' at Newcastle, the 'Three Counties' at Hereford, and the 'Great Yorkshire Show' at Harrogate. It also plans to visit technical colleges, schools and industrial estates. The company reports that the experiment has so far met with great success; farmers especially are recognising the need for equipment that will reduce the hours they have to devote to office work now that agricultural production must be ever more carefully planned and controlled.

The caravan was designed by Misha Black and William Apps of Design Research Unit, and was supplied by Pilgrim Mobile Units Ltd. The exterior is painted the standard Olivetti grey, with white lettering, and when on site, one side of the caravan lets down to form a platform on which typewriters and calculating machines can be displayed. Inside there has been an economical use of the space available. Along part of one wall are tables where the models can be demonstrated, and another wall contains cupboards and storage space. One of the most decorative features of the interior is perhaps the effective use of display panels and photo murals.

When the caravan was officially opened this spring, Sir Gordon Russell, director of the Council of Industrial Design, paid tribute to Olivetti's reputation in the field of industrial design. He said that the company now holds an honoured place among those firms with a completely integrated design policy which affects "not only the goods the company makes but everything they use, their noteheading, the colour and lettering of their vans, their office buildings, factory canteens and so on". This mobile showroom is a further example of attention to detail in what might to some people seem a comparatively unimportant matter and "a clear indication of the astonishing spirit of design thought in the firm of Olivetti".

Facing page

ABOVE *The designers of the caravan have aimed to produce a gay exterior which would at the same time suggest the efficiency of the equipment on show. When on site the front of the caravan lets down to form a display platform. The coloured panels and the 'Olivetti' sign on the roof contrast with the neutral grey of the exterior and attract the attention of the passer-by.*

BELOW *Inside the caravan there has been an effective use of colour contrasts. The cupboards and shelves are covered with 'Formica' laminated plastic; the display panel on the left was specially drawn for the caravan by Ronald Armstrong of D R U; an Olivetti poster is in the background. The banquette, chairs and the small table were supplied by Pilgrim Mobile Units Ltd, to the specifications of the designers. There are windows at each end of the caravan, and three windows in the roof; further lighting fittings highlight the models and the display panels.*

olivetti
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GOOD FORM 3

J. BERESFORD-EVANS

In this final article of the series the author further explores some of the underlying principles which help designers to create good form in domestic products

Form and function

Sometimes the whole product is the form, like a tea pot or a lighting fitting; or, on the other hand, the structural part may be submerged by the appearance and barely related to it, as in a domestic tumbler switch.
In pure terms, of course, 'form follows function' – but what is function? Certainly it is not confined to the mechanical operation of the product. When meters and sewing machines were kept in dark cupboards, as if they were slightly obscene, they were only acknowledged to exist on certain occasions; but if they are normally to be found in living areas, then the social setting – and thus the function – has radically changed. In other words a good design is an adjustment to widely divergent criteria. Its success will depend less upon the way it is oriented (ie towards the working parts of the machine or towards the casing with which it is enveloped) than on the manner in which the materials are handled and the extent to which emotional and practical needs are met.

GAS BOILER

Designer Eric Marshall

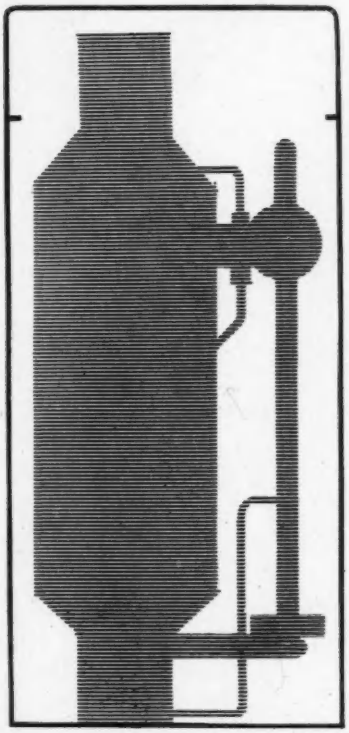
Maker Thomas De La Rue & Co Ltd

From traditional aesthetic standards this is a ruthless piece of camouflage, for the outer casing has little correspondence with the form of the working parts. It would appear as though the burners, heat exchanger, pipe runs and valves had been pulled together into as tight a general arrangement as possible, the size and shape of the casing being decided from the overall dimensions of these components.

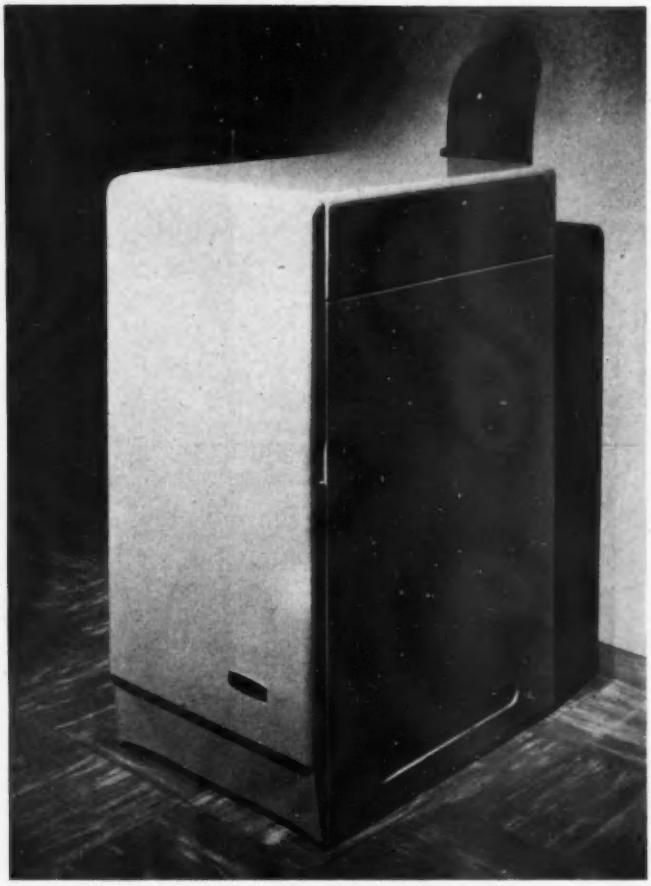
An alternative would have been to integrate the various components so that, apart from insulation value, an outer case would be unnecessary. But to do so here might well be to ignore large and important parts of the designer's problem; namely, economy of design in using standard components, simplicity of layout and access, and the kind of general appearance which is acceptable to the market because it can easily be envisaged in a domestic setting or a public living area.

Modulations to the simple rectangular shape are of the slightest – an air vent and a few well contrived panel joints – so that the design hinges about the

proportions of height to depth to breadth and the relations of the rectangles of top, front and side to one another. These are not especially interesting when studied at eye level, as if the boiler were a museum piece, but they are reasonable and appropriate *when seen in the normal manner* on a kitchen floor.



External form has little correspondence with the shape of the internal components in this De La Rue boiler shown front view within its casing.



SOLID FUEL BOILER

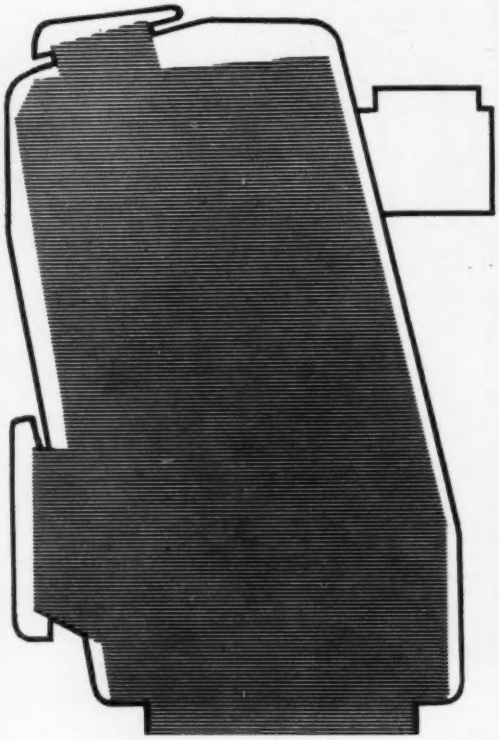
Maker Janitor Boilers Ltd

In its mechanical operation this cannot be compared directly with the previous example, for it is a gravity feed, solid fuel boiler for domestic hot water and central heating, and is, therefore, a very different kind of appliance. It has a welded steel shell and flue ways, with a sheet metal outer covering lying close upon a layer of slag wool insulation. The combustion space is designed to form clinkers which support the fire, and no firebars are used.

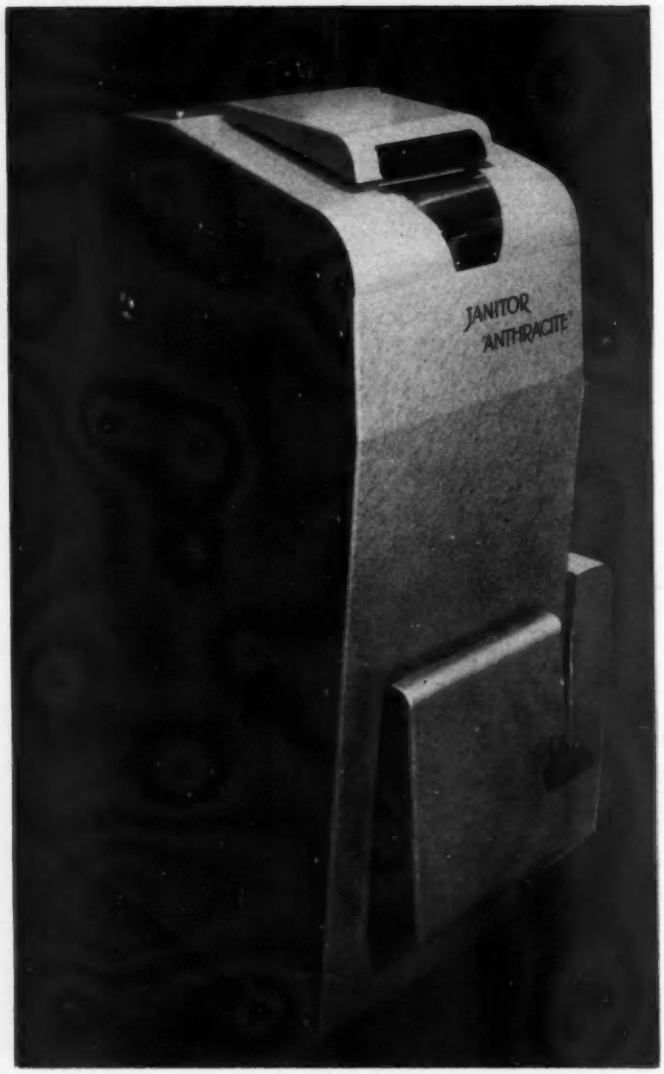
The impact, therefore, of this design is that it follows the classical precept of the external form being dictated by the functional requirements; which is often written about but seldom found – in domestic goods – with so much acuity. To the credit of such a design is the fact that everything is true:

SOLID FUEL BOILER

continued



External form follows closely the shape of the internal components of this 'Janitor' boiler.



nothing is hidden or disguised, so that we see, and more or less understand, the whole of the product at a glance. In my view it has just avoided the pitfall of looking mechanistic whilst achieving the ingenuous grace of frankness, although at the price of some parts that are only partially integrated.

Judgment, once again depends on the interpretation of function. If the household function should be to place it in the hall, for the benefit of background heat, then the form has not followed all the requirements. But as a high-duty boiler that is not likely to be found in a small house, its integrity will score to the full in a boiler room.

The design problem posed by a product is never one of abstract aesthetics. We need to know what it is meant for, where it will live and the men and women who will use it.

A postscript

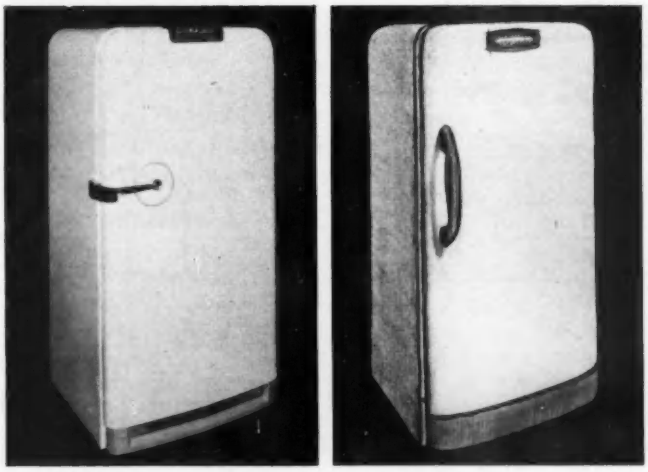
IN THE THREE ARTICLES of this survey we have used a few products, among the best of their kind, to comment upon some aspects of form. Thus, the products have not been analysed in their entirety but have been used as special illustrations of particular problems.

What we have hoped to show is that there are no rules of good form; but neither are there rules of good living, good behaviour or good factory management. For all of them, however, there are pointers and attitudes of mind which are based on underlying universal characteristics and these, being flexible within limits, can usually give us the guidance we want.

A design which is almost perfect for one age or market may appear less so in others, for aesthetic judgment is a product of its time and place; but in the best work of all times there may be found common qualities that reflect and satisfy common needs. When they do this the products can transcend the ephemera of their date of design and will translate from country to country.

The first common characteristic is man. The size of man is the basis, the pitch-pipe of scale; for when we say that a product or a part of it is out of scale we mean that it is large or small by reference to a door, a handle, a window, or some object that is directly in contact with man in his normal activities. We may deliberately increase or reduce the scale of the whole by adjusting the size of the point of contact but, once having set the scale, it must be held constant throughout or there will be confusion. Proportion, therefore in its simplest terms, can be considered as the more detailed ordering of components within the framework of scale.

The other thing about man, which is curiously hard to bear in mind, is that he, the user, is the ultimate client for whom we are working. The excitement of technical or aesthetic design may too easily produce solutions in their own terms, when what really matters is that the product should be of use and pleasure to those people who are in daily contact with it. A vacuum cleaner may represent exemplary productivity, sell like hot cakes, and be chosen for 'Design Review', but these are secondary features when compared with the condition of the carpet and the pride of possession it gives to the owner. The design of musical



In a large white box such as this a sense of scale is achieved by the size of the handle. If it is a small neat button as in the actual refrigerator by Frigidaire Ltd, left, the product will look large and imposing. But if it is a large handle, as in the mock-up, right, the eye automatically associates the handle with the size of the human hand and the whole refrigerator is scaled down accordingly.

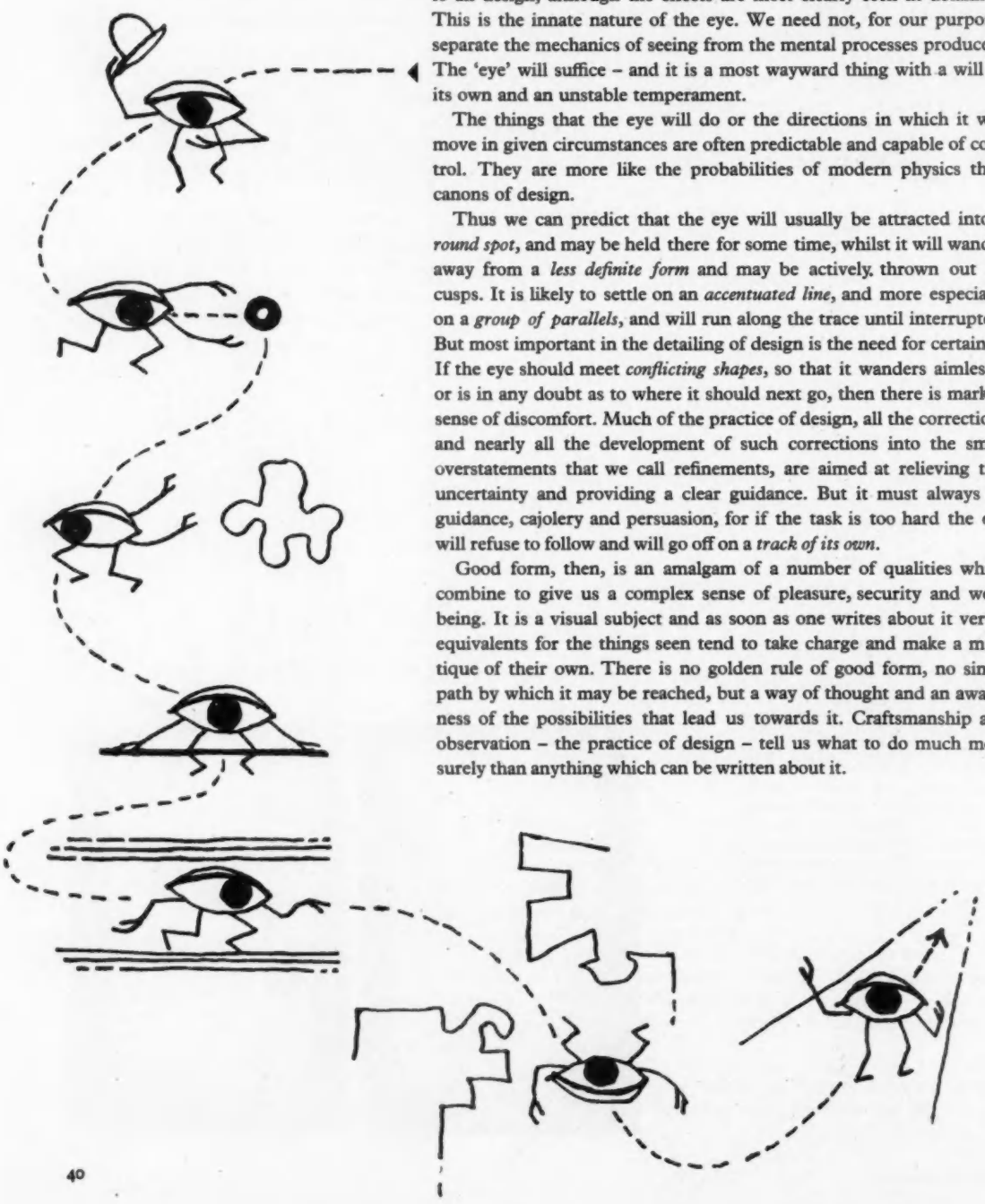
instruments is highly conventional, and very often odd to an engineer's eye, but there is great charm of visual scale, sympathetic or even ergonomic arrangement of controls, and the humanistic grace which derives from close personal contact with man.

Such considerations can guide us in the main lines of our design work and keep precepts in their proper place as drawing-board aids; but there is another characteristic which is universal in its application to all design, although the effects are most clearly seen in detailing. This is the innate nature of the eye. We need not, for our purpose, separate the mechanics of seeing from the mental processes produced. The 'eye' will suffice – and it is a most wayward thing with a will of its own and an unstable temperament.

The things that the eye will do or the directions in which it will move in given circumstances are often predictable and capable of control. They are more like the probabilities of modern physics than canons of design.

Thus we can predict that the eye will usually be attracted into a *round spot*, and may be held there for some time, whilst it will wander away from a *less definite form* and may be actively thrown out by cusps. It is likely to settle on an *accentuated line*, and more especially on a *group of parallels*, and will run along the trace until interrupted. But most important in the detailing of design is the need for certainty. If the eye should meet *conflicting shapes*, so that it wanders aimlessly or is in any doubt as to where it should next go, then there is marked sense of discomfort. Much of the practice of design, all the corrections and nearly all the development of such corrections into the small overstatements that we call refinements, are aimed at relieving this uncertainty and providing a clear guidance. But it must always be guidance, cajolery and persuasion, for if the task is too hard the eye will refuse to follow and will go off on a *track of its own*.

Good form, then, is an amalgam of a number of qualities which combine to give us a complex sense of pleasure, security and well-being. It is a visual subject and as soon as one writes about it verbal equivalents for the things seen tend to take charge and make a mystique of their own. There is no golden rule of good form, no single path by which it may be reached, but a way of thought and an awareness of the possibilities that lead us towards it. Craftsmanship and observation – the practice of design – tell us what to do much more surely than anything which can be written about it.



This Italian table fan was given a 'Golden Compasses 1954' *award at the tenth Milan 'Triennale'. It confirms the fact that the design of a fan can be fundamentally simple rather than a haphazard putting together of motor, blades and guard.* DESIGNER Ezio Pirali. MAKER Fabbriche Elettroniche Riunite.

FANS

for the East

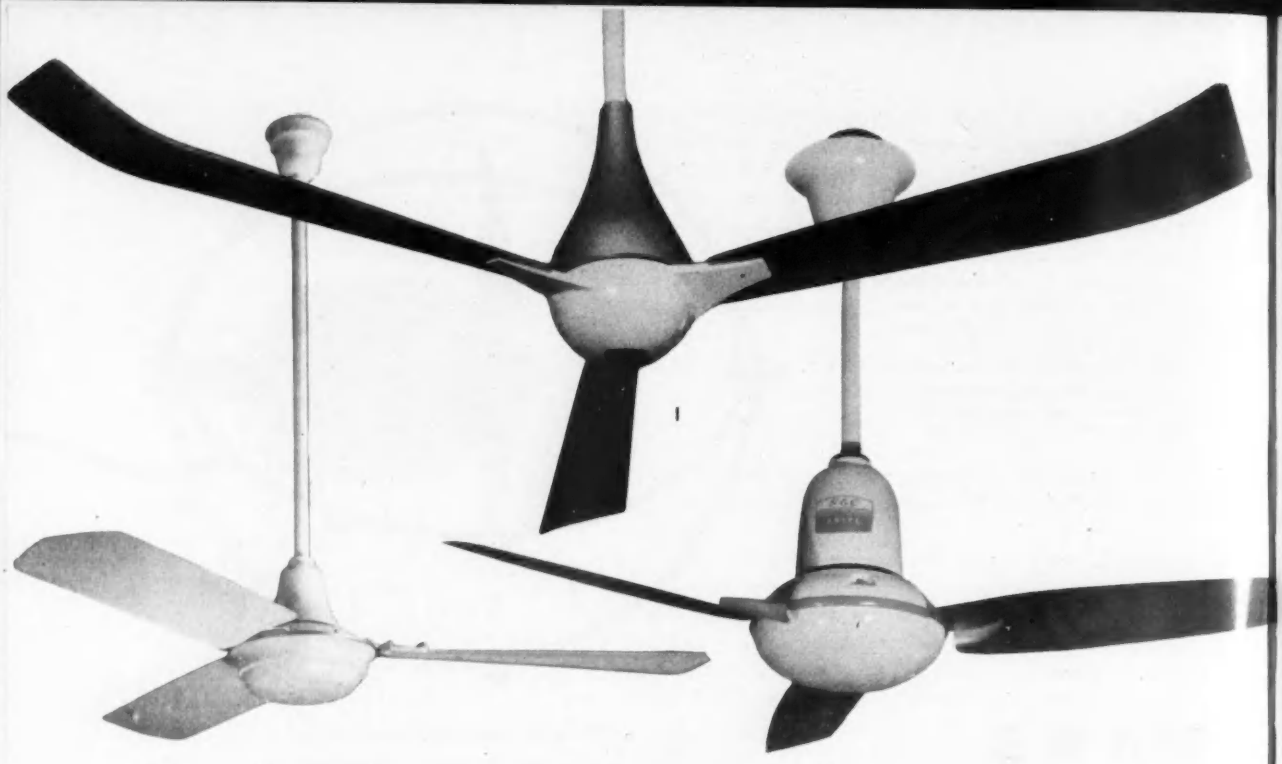
PETER E. M. SHARP

AS FANS DO NOT HAVE a wide sale on the home market, it is important that they should be designed for export. Some countries, particularly in the Far East, have a widespread power network, and into this market come thousands of fans annually. Competition from Italy, Holland and Japan is keen, and India too is now also producing for home and export. If British manufacturers are to retain these overseas markets, it is important that their design standards should not lag behind those of their competitors.

This report will be concerned with two sorts of fan – ceiling and table; table fans also include wall and pedestal types. It is in the former field, where there is no home demand, that so little has been done by British firms. This type of fan is sold in enormous quantities in the Far East; the Central Electricity Board of Malaya, for example, hires out fans at a nominal rental with the object of selling electricity in off peak hours, and therefore places orders for a few thousand at a time. As these fans cost about £15 each, such a sizeable order should encourage manufacturers to meet the design requirements of the board. It so happens that the CEB of Malaya employs two architects of its own, and a number of enthusiastic engineers who can appreciate good design; and there are no doubt many other similar organisations which are as discriminating.

Scope for improvement

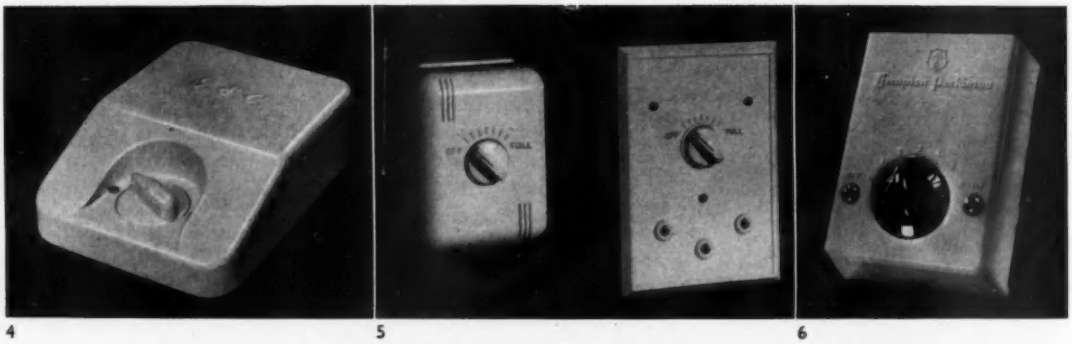
The use of the capacitor motor in ceiling fans has led to greater efficiency and smaller casings; aluminium has produced smoother and lighter bodies. Most manufacturers now use aluminium for blades; one Dutch manufacturer uses transparent acrylic plastic, while India seems to be the first country which has introduced coloured decorations on ceiling fans. But there is a lack of an overall design policy, particularly obvious since the introduction of the capacitor motor. This posed a problem, for the capacitor is a metal case about 4 inches by



2 3

Ceiling fans

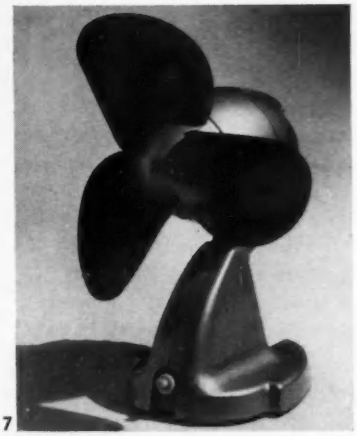
1 Some thought has obviously gone into the design of this Dutch fan, in which the motor and capacitor are integrated within a compact and simple casing. The blades are made of a special aluminium alloy and the turned up ends are decorative rather than functional. MAKER Indola. *2 In this British model, the latest from the firm's range of ceiling fans, all components are completely hidden within the housing, which has an appearance of unity and is not so bulbous as in earlier models produced by this firm.* MAKER Crompton Parkinson Ltd. *3 The flat shape of the motor lends itself to the lower ceiling heights of low cost housing in the Far East, but the capacitor casing, which links the down rod and the motor, appears to be a separate unit added as an afterthought.* MAKER GEC Ltd.



4 5 6

Regulators

4 This plastic regulator is simple and unobtrusive; its interest arises from the sloping surface, and the recess for the switch. MAKER GEC Ltd. *5 Regulators are usually mounted adjoining light switches, and the flush version illustrated on the right is a neat solution for combining the regulator with one, two or three light switches. A surface regulator produced by the same firm shows a rather dull use of plastic with a typical 'three line' decoration.* MAKER Veritys Ltd. *6 A good design solution for this type of regulator.* MAKER Crompton Parkinson Ltd.



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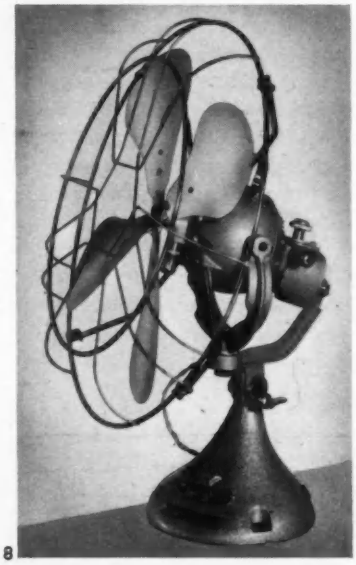

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1 inch by 3 inches; most manufacturers stick it on as an excrescence, or add a dome to the motor cover quite out of keeping with the size of the capacitor. A few manufacturers still do nothing, for the sake of cleanliness and neatness, to hide all the nuts and bolts which fasten the blade to the casing, though there is now some improvement in this respect. In the details of construction too the designer's hand is often lacking. Ceiling fans are difficult to erect – as anyone who has ever had to work over his head will know – and it is therefore incredible to see the difficult terminals for the leads which have been devised. Not one uses a plug and socket, although this would appear to be an obvious solution, as the socket could be connected to the leads before putting up the fan on its hook. In many cases it is necessary to take down the whole fan if the capacitor needs to be replaced.

Ceiling fans require wall mounted regulators to vary the speed. With the increased efficiency of motors, regulators can now be enclosed without danger of overheating, but they are mostly very ugly. It must be borne in mind that the regulators are usually placed next to the light switches for convenience of wiring (but not of use) with a separate switch for the fan in addition to the 'off' position already provided on the regulator. Some electricity authorities needlessly insist on this. There is only one regulator available which can be countersunk into the wall, and the switches for the fan and up to two lighting circuits are included on the cover plate (see number 5). In halls and other large rooms, such as clubs, many of these regulators are placed side by side, and the lack of any attempt to consider this factor is emphasised by the unsightly wall cupboards in which they are hidden.

Table fans

Table fans have been steadily developed, and the use of die-castings, for which the tool costs are initially very high, has led to more care in the early stages. As these fans are seen from closer quarters more trouble has been taken with finish and decoration and the best of the British fans are excellent. Little notice, however, has been taken of Oriental taste which abhors black and gold and prefers light or bright colours and chromium. There are still many British firms which

7 Guards are inconvenient and never really safe. Whilst these rubber blades can give a nasty knock, they will not cut, an important factor where children are concerned. DESIGNER Leslie Roberts. MAKER GEC Ltd. **8** *This fan has an unusual motion, oscillating through both the vertical and horizontal planes. But the whole design lacks unity and compactness and its appearance suffers from the numerous projections.* MAKER Veritys Ltd. **9** *A well designed fan, carefully thought out, even to the label. There is also a continuity in the design standard of the packaging and literature of this firm's fans.* MAKER H. Frost & Co Ltd. **10** *This Italian design is undoubtedly the most successful of the table fans. There are no projecting screws and levers; all the components are related and produce a well balanced, integrated appearance which does not pander to a taste for exaggerated, science fiction streamlining.* MAKER Ercole Marelli e C.

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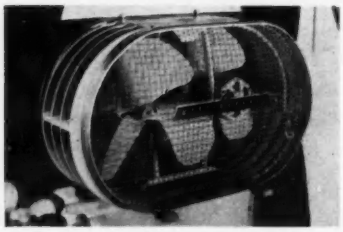

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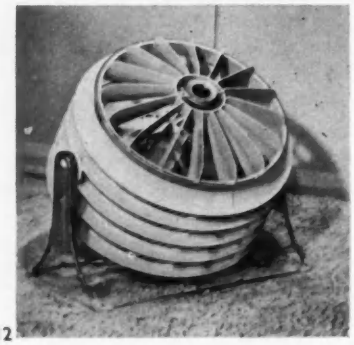

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11 and **12** *American fans are usually versatile, and new ideas for portable fans are constantly being produced. But they are often clumsy like the models illustrated here.* MAKER Westinghouse.

appear to have kept their designs since 1900 or thereabouts, ornamentally decorated like certain makes of sewing machine. In the matter of guards, few are really safe from prying fingers; the Japanese models have the closest mesh, and are also well finished in bright colours instead of the usual chromium or gilt. Speed regulators when fitted, are in the base, and usually consist of a lever protruding through the casting, as though this were an afterthought.

Some table fans are arranged to oscillate, and require a series of gears and levers, which a few manufacturers leave exposed. In most models now, however, the levers are taken into the motor casing for better appearance and cleanliness. The usual motion is from side to side, but one fan describes an orbit, thereby spraying a wider area – a particularly effective device when placed on the floor or wall. Table fans, often made into pedestal types by being placed on a heavy stand, seldom harmonise with modern furnishings. These fans look particularly awkward near a modern standard lamp, and even the Americans, pioneers in this type of fan, seem to have produced a wind machine rather than a design to harmonise with domestic furniture.

A last word is necessary on the subject of labels. Many manufacturers of fans are primarily makers of electric motors, and therefore seem content to carry over the black and brass embossed plate to the domestic fan – a plate which is placed in a prominent position and held on by screws or rivets which are not even countersunk.

The wide market for fans offers a virtually untouched field for the industrial designer, and there is scope for both visual and mechanical improvement in both types of fan discussed here.

13 *An interesting pedestal fan of Dutch design which lacks some of the clumsiness associated with this type. The switch and regulators are unobtrusive.* MAKER Indola.

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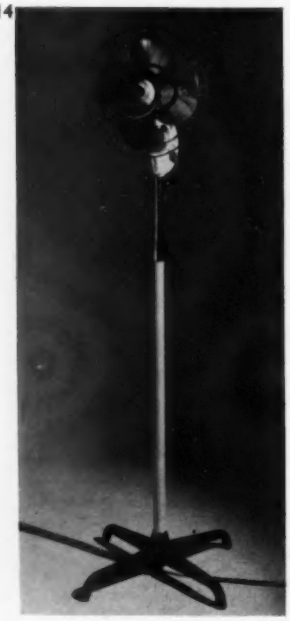

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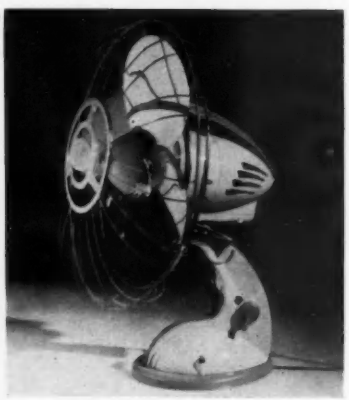


14 and **15** *This British firm's latest range of table and pedestal fans has been specifically designed for export, and is available in various colours. There has been some attempt at 'streamlining', but the design still suffers from many of the faults of British fans. The pedestal version can be completely dismantled to pack into the minimum of space.* MAKER Limit Engineering Group Ltd.

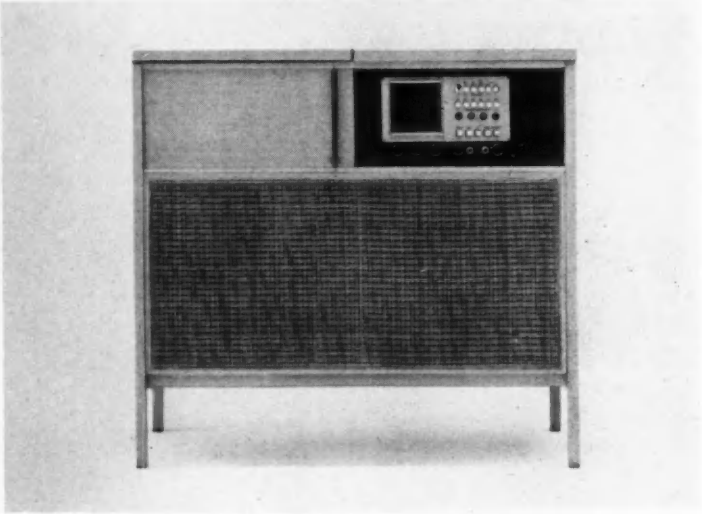
British display in Vienna

The 'International Autumn Trade Fair' is being held in Vienna from September 9–16, and most of the exhibits for the British Government stand there have been chosen from 'Design Review' by the CoID. Some of the tableware and pottery selected is illustrated here against a fabric by Warner & Sons Ltd. The jersey milk jug on the left is by David Hollander & Sons Ltd, the glass jug is by The Stourbridge Glass Co Ltd, the teapot and jug by Ridgway Potteries Ltd, and the goblets are by Harold Gordon. Below, the three vases are by Carter Stabler & Adams Ltd, and the strawberry pot by C. H. Brannan Ltd. Leather goods and sports equipment are also included, as well as some exhibits from the Victoria and Albert Museum which have been selected by the Board of Trade to illustrate British design in the past.

Overseas Review

USA

'Hi fi' in the home

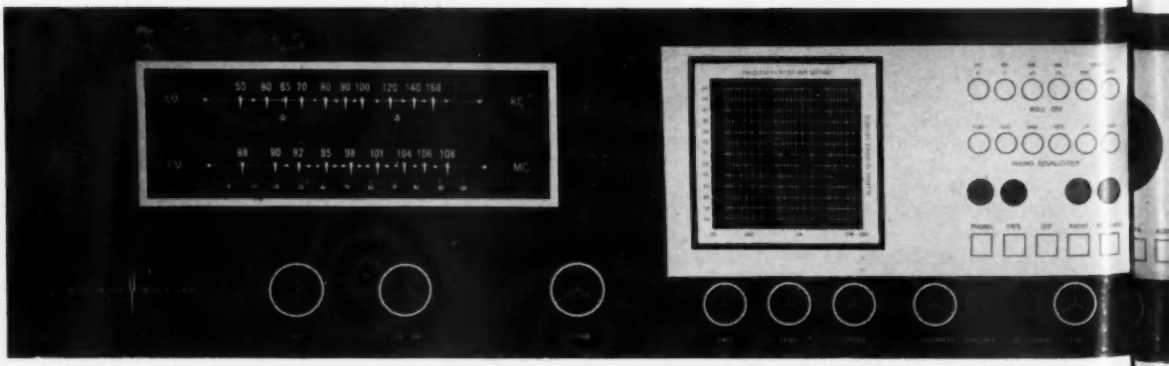


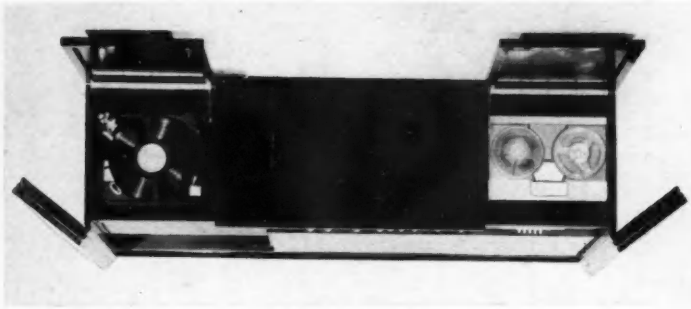
36-inch gramophone unit – the smallest of the range of six 'hi fi' units by Bell & Howell. Cabinets are made of mahogany with five alternative finishes. Control panel is covered with black leather, with visual tone control and white push buttons set in a brass plate. Knobs are black plastic with spun aluminium or brass rims.

High fidelity sound reproduction is often of more interest to the specialist or amateur technologist, who delights in the mechanics of the problem, than to the keen music lover who looks on 'hi fi' only as a means of increasing his enjoyment of the music. The firm of Bell & Howell, in producing the new range of equipment shown here, has attempted to reconcile these two divergent interests by providing high quality performance with comparative ease of control, while at the same time including such gadgets as the oscilloscope and visual tone control which would appeal to the technically minded.

From the start the firm realised the need for 'sight interest as well as sound' and Paul McCobb Associates was called in to design the range of six console cabinets and to work with the engineers on the design and layout of the control panels. These control panels form the main focal interest in the otherwise simple looking cabinets, and as such it was felt that they should convey some idea of the amount of equipment hidden away inside. The same basic panel has been developed for each unit and has merely been extended to embrace the additional features such as radio, tape recorder and programme clock incorporated in the more expensive models.

The design of the cabinets was affected considerably more by performance requirements than is normal in radio and television cabinet design. The acoustical problem of 'feedback' dictated the use of isolated chambers to house individual groups of equipment with insulating air spaces and rubber mountings. Materials were chosen only after extensive testing for their suitability. An example of this is the use of woven cane for the speaker grille, a material which was said to have come nearest to acoustical perfection, at the same time providing a rich texture in key with current practice in other spheres of modern American furniture.





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72-inch radio, gramophone and tape recorder combination – largest of the 'hi fi' units shown front view and from the top. With components housed in separated compartments to avoid feedback, this range is claimed to be the first true high fidelity equipment to be successfully mass produced with in single cabinets.

Control panel for the 66- and 72-inch units. On the left is the radio tuner unit; in the centre is the brass plate containing the visual tone control, the push button equaliser and oscilloscope; on the right are the timing clock and tape recorder controls.

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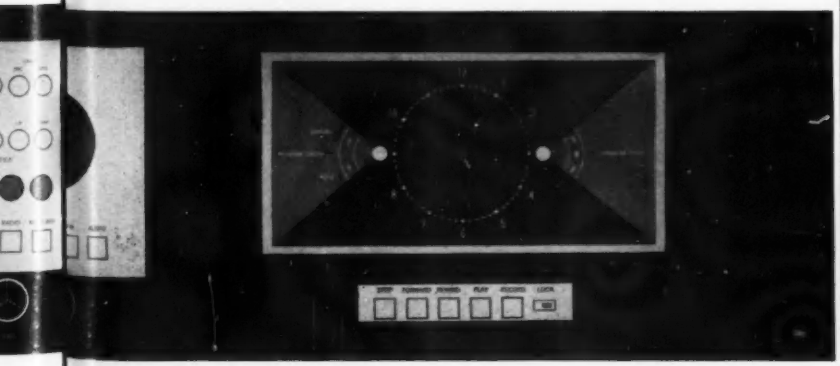
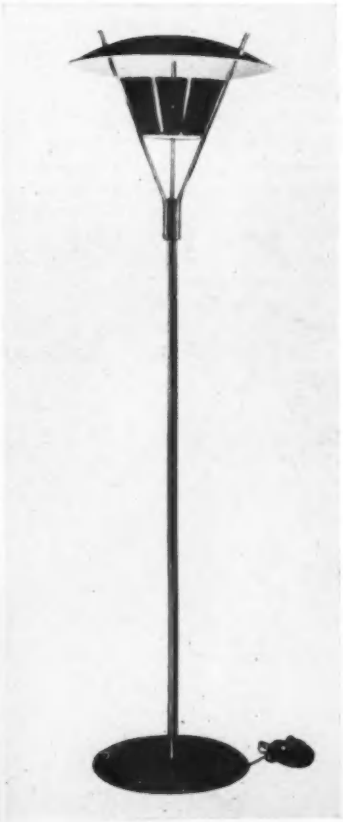


Lighting for the garden

In this country the recent tendency of café proprietors to encroach upon the pavement must have been widely noticed. This desire to engage the attention of the outdoor public for a cup of coffee or an occasional snack may suggest that in other spheres outdoor living in this country has been sadly neglected. Vagaries of climate and a relatively short summer have dictated the use made of the domestic garden. At sundown most people agree that it is time to come indoors.

To combat similar prejudices in the USA, one American manufacturer, Lightolier, Inc, has introduced a range of outdoor lighting fittings which not only make the garden habitable on a fine night but also allow it to take on a

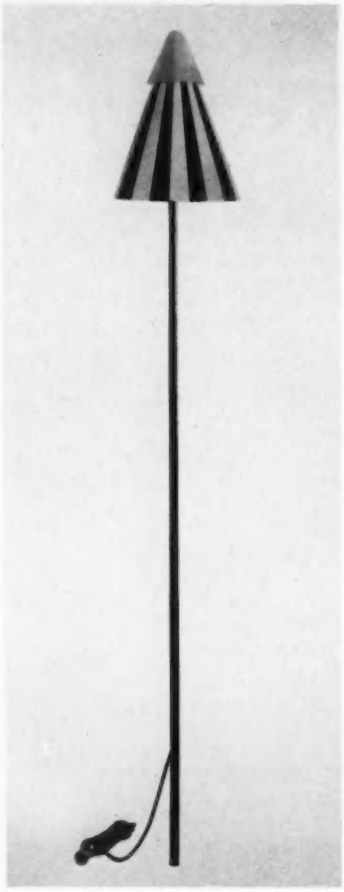


Portable standing lamp combining polished brass with a charcoal black finish.

USA

lively, fresh identity when seen from indoors. Some examples from this new 'Lytescape' range are illustrated here, designed by the Americans Joseph D. Weiss and Gerald Thurston, and the Italian Maurizio Tempestini. Aluminium construction is used throughout to resist weather; all the shades have a baked enamel finish and to prevent the accumulation of dead insects are open around the base of the light socket. This feature also provides for the drainage of rain water. The light fittings can be placed permanently in position or moved occasionally to any place within the circuit laid down in the owner's garden.

Such an idea has yet to take hold in Great Britain. It can reasonably be foreseen that hotels and restaurants which cater as much for an outdoor as an indoor clientele would benefit from a similar method of extending the decorative and useful qualities of their surrounding gardens. Like his American counterpart, the British domestic householder could, without too much mental readjustment, gradually come to consider his house and his garden as related living areas. Patio-houses are a long way off, but if larger windows were the only gain in this country, it would, in view of the limited amount of sunlight available, be a major gain indeed.



High and low level fittings with cones finished in black and white stripes and with red caps.

One of a range of 'mushroom' medium height fittings, finished in green.

Flood lighting unit available with a variety of fixing devices. All the examples here can be fitted with insect resistant lamps.

Cellulose acetate lantern trimmed with satin black aluminium. Clips on the cord allow the lantern to be hung from a tree branch or garden trellis.

NEWS

REPORTS & CONFERENCES

Artist or technologist?

A conference on 'Some Aspects of Training in Industrial Design' was held recently at Woolley Hall, near Wakefield. The speakers included Ernest Race, Professor R. Y. Goodden and F. C. Ashford. Mr Ashford, who is a senior tutor in the department of engineering design at the Royal College of Art, spoke about the problems which have arisen in the training of designers today, and questioned whether the general level of education of the average art school student was sufficiently high to enable him to work properly with engineers, scientists and others with high academic and professional qualifications. It is now generally recognised that the status of the product designer should be equal to that of the various engineers and technicians with whom he has to work. Mr Ashford continued "He must be able to maintain that status by being able first to do his own job well, then to be able to understand what the others are trying to do. We ask a great deal from the student, but we must not expect him to be a potential Leonardo da Vinci. His total capacity is just so much; parts of it can only be sharpened and developed at the expense of others." But, Mr Ashford concluded, "we must still believe the artist to be the best person to be a designer; on balance, we shall get a better result from designers who are good artists and less good technologists, than we shall from good technologists who are less good artists".

European designers in USA

The New York chapter of ASID, the American Society of Industrial Designers, held a dinner meeting recently in honour of five designers from Europe – Misha Black from Great Britain, Jupp Ernst of Germany, Alberto Rosselli of Italy, Jacques Vienot of France and Arthur Hald of Sweden. Misha Black, past president of the SIA, said that while there had been a phenomenal improvement in British design in the past twenty years, the surface had barely been scratched. He described the opening of The Design Centre and spoke of the two most evident trends in British design today; one where modern design is given a strong traditional emphasis, as exemplified by the Royal College of Art, and the other which stresses the entirely contemporary; the differences produce a virile and stimulating atmosphere and an attitude of "humility mixed with confidence".

'The designer and his client'

In an address he gave recently to a design conference sponsored by the American Society of Industrial Designers and the Illinois Institute of Technology, Chicago, Richard S. Burke, manager of the development and testing laboratories of Sears Roebuck & Company in Chicago urged that management should learn more about design if it is to be used effectively. When the businessman sits down with his designer, said Mr Burke, he is less prepared to give direction, evaluate results, and in general talk the other fellow's language than when discussing production problems with the factory man or financial matters with the comptroller. Many people think it unreasonable to expect an ordinary businessman to become good at design, but this, in Mr Burke's opinion, is a mistake; an ideal state of affairs will be reached when the success of any product from the point of view of design "will be the result of teamwork between a well trained merchant of design who is the client and a well trained merchant of design who is the designer".

Brewer's plaque

This brewer's plaque representing the 'red hand', the Ind Coope & Allsopp Ltd trade mark, is to be used in all the firm's public houses. It was designed by Barney Seale, sculptor and heraldic designer, and produced in his own studio in materials specially made for him which resemble porcelain, but are stronger. The red hand is on a white ground, and the laurel wreath in two tones of blue.

DIA conference

'Challenge to Design' is the title of a conference to be held at Ashridge House in connection with the Design and Industries Association from October 19–22. Among the main speakers are F. Q. den Hollander, president of the Netherlands Railways, Mrs Mary Adams, assistant to controller of programmes, BBC Television, Sir Hugh Casson, and Paul Reilly, deputy director, CoID.

continued on page 51

Transport symbol disappointment

A new emblem, illustrated below, has been designed for use on some of British Railways stock; the badge appears to be a variation of the original clear, crisp outline of the London Transport sign; while it certainly avoids the jelly-like curves with which we are now all too familiar in the British Railways 'totem', the unduly extended 'ears' have debased the original fine shape of the London Transport symbol without allowing comfortable space for the lettering. At the same time the rounding of the corners makes a bad foil to the circle.

Packs advertise products

Do you let them advertise yours?

There are professional packaging designers. Names and addresses can be obtained from the Record of Designers; there is no charge.

Write or telephone The Record of Designers, The Council of Industrial Design, The Design Centre, 28 Haymarket, London SW1. TRAfalgar 8000

One of the forty eight fitted bays of traditional and contemporary furniture on view at 131-139 Curtain Road, Shoreditch

BERESFORD & HICKS of LONDON EC2

continued from page 49

COMPETITIONS

RSA bursaries

The Royal Society of Arts has recently announced details of its industrial art bursaries for 1956. These are usually worth £150 each, and are offered to young designers who intend to take up industrial design as a career. Three new sections are to be introduced this year:—pottery, cinema and television settings, and domestic glassware; other sections include carpets, electric light fittings, jewellery, wallpaper. The last date for receipt of entries is October 15, and full particulars of the competition may be obtained from the Royal Society of Arts, John Adam St, WC2.

The ideal home

Registered architects are invited to submit designs for a house to be erected at the 'Daily Mail Ideal Home Exhibition' next March. The last date for receiving entries is September 27, and further details of the competition may be obtained from the 'Daily Mail' Architectural Competition, Gough House, Gough Square, London EC4.

Newspaper design award

Details of the 1956 Award for Newspaper Design have been announced; the award is organised by the journal 'Printing World' and all newspapers produced and published in the United Kingdom are eligible to enter. An independent panel of judges, including Sir Gordon Russell, director, CoID, has been appointed. The closing date for entries is September 24. Further details can be obtained from: Annual Award for Newspaper Design, 'Printing World', 329 High Holborn, London WC1.

Plastics poster

'British Plastics', the Iliffe journal, has published details of a poster competition to advertise the 1957 'British Plastics Exhibition'. Further information can be obtained from The Publicity Manager, British Plastics Exhibition, Iliffe & Sons Ltd, Dorset House, Stamford Street, London SE1, and entries should reach this address by September 29, 1956. The winning design will be selected by a panel of six judges, including Peter Hatch, head of graphic design and production, CoID.

FBI prize

The FBI Industrial Art Committee's annual prize to enable a final year student of the Royal College of Art to travel abroad has been awarded this year to Alan Fletcher, a student in the school of graphic design. Alan Fletcher is 24, and has studied at the Hammersmith School of Art, the LCC Central School of Art and the Royal College of Art. The prize will enable him to accept a scholarship for a year's study at the Yale University School of Design.

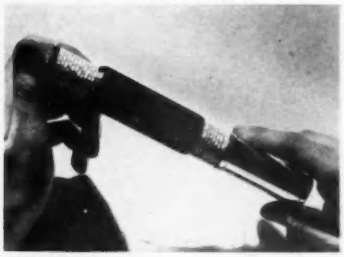
Travel grants to USA

A special selection committee of the English-Speaking Union has awarded Steuben-Corning Travel grants to Sir Hugh Casson, E. A. Lane, W. E. Tatton-Brown, Professor R. D. Russell and James W. Tower. These grants are made possible by gifts to the English-Speaking Union from the Steuben Glass Company and the Corning Glass Foundation; they will enable the winners to spend about ten weeks in the United States.

Applications are now invited for a sixth Steuben-Corning Grant; further details and application forms can be obtained from the Director-General, English-Speaking Union, 37 Charles Street, Berkeley Square, W1.

New factory

These general offices overlook the main working area in the new factory for Alfred Imhof Ltd at Uxbridge. In 25,000 sq ft of production space 130 people are employed, mainly in the manufacture of instrument cases. Direction signs are unified throughout and echo the high standard of the firm's trade literature. The architects were Tayler & Green.



Slide rule

The 'Otis King' calculator, manufactured by Carbic Ltd, is basically a slide rule presented in a different and more compact form. It is well finished and simple to use, and is excellent for those who require an inexpensive calculating instrument for general mathematical work.

EXHIBITIONS

The Design Centre

'Designers at work,' an exhibition of work commissioned through the CoID Record of Designers is to be held in The Design Centre from September 10–29. It will be followed by an exhibition of carpets from October 8 – November 17.

Rural industries display

One of the strong points of the Rural Industries Bureau is that it does not wittingly countenance anything which is badly made. Craftsmanship, in both new and traditional materials and techniques, is its main concern and there is no place for the folksey piece whose sole recommendation is that it has been ineptly made by hand. The bureau's standard in craftsmanship is manifest in its permanent collection of work by rural craftsmen and others concerned with similar production in small workshops.

For some years the bureau has had an arrangement with the circulation department of the Victoria and Albert Museum, whereby part of this permanent collection is shown in provincial museums for a few weeks at a time. This travelling display has recently been replenished and after a brief showing at the V and A has gone on its second tour.

The new display settings are unfortunately cramped, as the previous stands proved too large for some museums. Among the new exhibits are some impressive stoneware produced in quantity in Derbyshire, and, perhaps unexpectedly in this context, one of Aidron Duckworth's glass fibre chairs, which points to the technical possibilities of small workshop production – and in this display exposes, incidentally, the current fallacy that all well designed things, irrespective of style and character, can go happily together.

This important collection, for which I believe there is scope and justification for ample expansion, is by living craftsmen whose work can be readily commissioned, and it deserves the active support of both provincial and London galleries to make it more widely known. J.N.W.

continued on page 53

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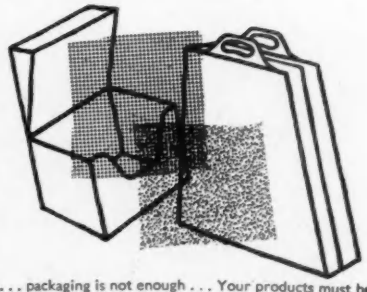

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continued from page 51

SIA in Chicago

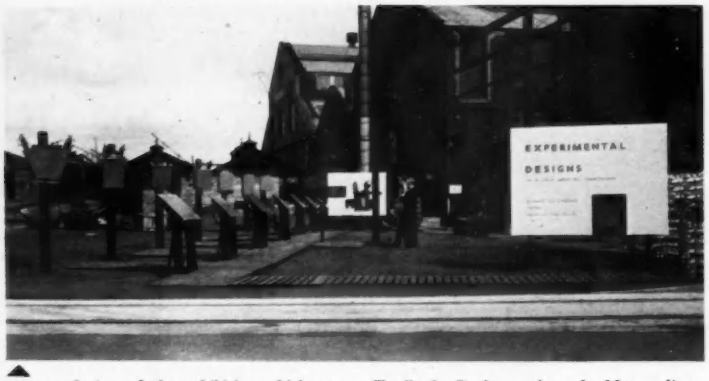
An exhibition of the work of the Typographers Group of the SIA is now being held in The Normandy House Gallery, Chicago. The Society of Typographic Arts in Chicago invited the group to send a selection of members' work.

'Design Project' exhibition

A small exhibition held recently at the Trafford Park works of Metropolitan-Vickers Electrical Co Ltd, was arranged by the appearance design office to demonstrate the work done by students in a class held earlier in the year. This class is a continuation of the 'Experimental Aesthetics' course which Paul Reilly, chief industrial officer, CoID, mentioned in his article on 'Appearance Design in the AEI companies' (DESIGN November 1955). The 'Design Project' course is run by J. Chris Jones of the appearance design office and, as well as further discussions on the aesthetic aspect of design, now includes a practical project which was tackled this year in conjunction with Jack Howe, the company's design consultant.

Students, both engineers and draughtsmen, were invited to redesign a typical pole-mounting distribution transformer. They had to include the standard core and windings, insulators, etc, and to observe all the practical points concerning internal clearances. At the same time they were encouraged to reduce the total weight of the transformer and the oil content without decreasing the cooling surface; appearance was also to be considered. The transformer engineering department co-operated to ensure that results would be practical in application.

Each exhibit consisted of a full scale model of a transformer together with a drawing giving full particulars of the design. A cut-away version of the original type of transformer was also shown for comparison.



A general view of the exhibition which was held in one of the open spaces within the Trafford Park works of Metropolitan-Vickers Electrical Co Ltd.

Students of the 'Design Project' course and members of the Metropolitan-Vickers staff examining one of the exhibits. J. Chris Jones (in coat) is the organiser of the class.

PUBLICATIONS

Plastics progress

'Plastics Progress 1955', edited by Phillip Morgan and published by Iliffe & Sons Ltd at 50s, is based on papers given at the British Plastics Convention, organised by the journal 'British Plastics', in June last year. The papers are given in full and include a paper on 'Glass reinforced plastics in automobile construction' by H. Silman, research manager, Ford Motor Co Ltd, Birmingham; the discussions are also included. The book is well illustrated with diagrams and photographs.

Colour in factories

The British Colour Council has recently published a second edition of 'Colour and lighting in factories and offices'. The colour schemes have been revised and amended to include new colour ranges now available owing to technical improvement in paint manufacture, and take into account the new light sources which affect the appearance of colour.

School stationery

E. J. Arnold & Son Ltd has recently issued a new edition of 'School stationery and sundries'. In design and layout it is similar to the 1951 catalogue, which was chosen by the British Federation of Master Printers in 1954 as one of the hundred good catalogues in Great Britain.

MISCELLANEOUS

CoID autumn courses

The CoID will be holding three courses this autumn at which retailers and wholesalers will be welcome. A course on glass will be held at the Glass Manufacturers' Federation headquarters in Portland Place, London, from September 17–20; there will be a course on pottery at the Wedgwood Memorial College, Barlaston, Stoke-on-Trent from September 24–28, and a furniture course at Attingham Park, Shrewsbury, October 15–19. Further details are available from Miss Jean Stewart, retail officer, CoID.

Change of address

The address of the Council of Industrial Design Scottish Committee is now 46 West George Street, Glasgow C1, and the telephone number is Douglas 3914. A further announcement will be made shortly about the additional exhibition and library facilities that will be available in the new premises.

A museum of orthopaedics

The Institute of Orthopaedics has recently opened a museum in its premises in Great Portland Street. It is essentially a 'teaching' museum and will show the results of current investigations, particularly those carried out in the various departments of the institute. Dunn's of Bromley designed the fittings and the layout. The museum is on two floors, linked by a teak staircase; most of the paintwork is white, but the wall behind the staircase is covered with a yellow and

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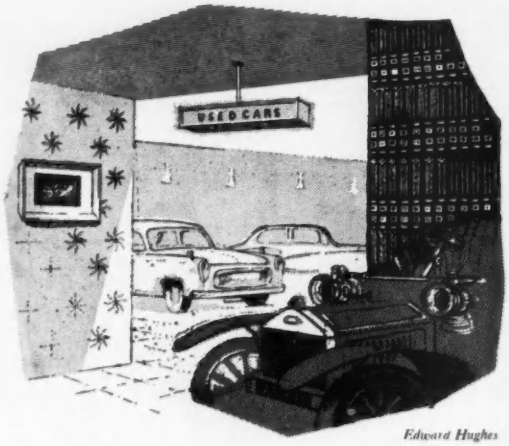

Edward Hughes

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The wallpapers used in this showroom relieve the severity of its appearance and introduce character in the decorative scheme.
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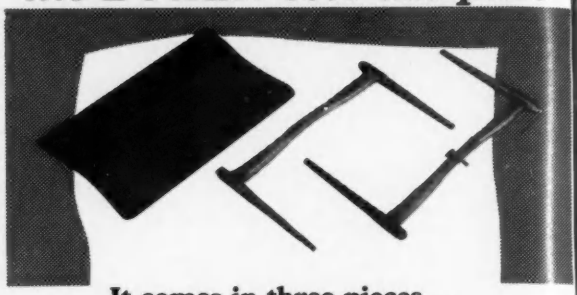
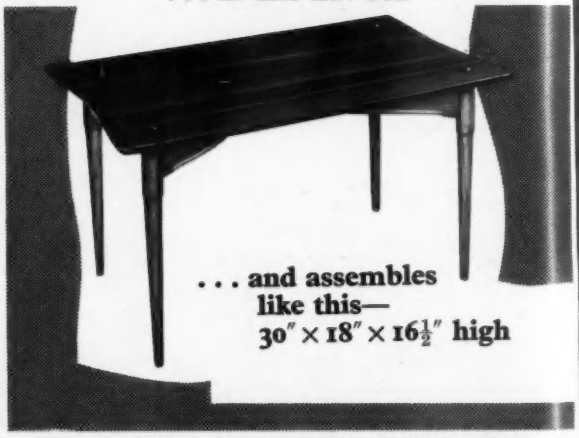
the BOXER sets the pace



It comes in three pieces . . .

. . . in this flat box



. . . and assembles like this— 30″ × 18″ × 16½″ high

There's nothing like it anywhere—this trim table a child could assemble in half-a-minute. (No tools needed.) So handy for storing—(retailers note!)—you can fit 6 boxed Boxers in the space of one ordinary table. So practical, too—the neat, sleek lines blend with any decor, the finish gamely resists heat. With natural oak, mahogany, or stripey walnut veneered tops, you can buy a Boxer for only 77/6. See it for yourself at the Design Centre.

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CoID photographs

continued from page 53

brown wallpaper. The furniture is mahogany and ash, and the tables and microscope benches have grey linoleum tops lipped with mahogany. The shelves and the light fittings are adjustable, as the exhibits will change from time to time. X-rays are displayed in illuminated stands and specimens in oblong shaped jars; the layout is simple and unassuming, and the exhibits are shown to their full advantage.

Industrial design in Pakistan

An Institute of Industrial Design has recently been founded in Pakistan. It aims to "guide, advise and direct the development of commercial and graphic arts, and industrial design in Pakistan, and to encourage the preservation of traditional handicrafts". The institute will conduct research into design and workmanship and suggest methods of raising the standard of design. There will be temporary exhibitions in Pakistan and elsewhere, and the institute also plans to maintain an instruction centre and arrange courses for industrial designers, commercial artists and craftsmen.

Appointment

Stuart Rose has recently joined the board of Samson Clark & Co Ltd, advertising agents, as creative director. Mr Rose was art editor of DESIGN for three years.

Retirement

The Electrical Association for Women has announced the resignation of its director, Dame Caroline Haslett. She will continue to act as honorary adviser to the association which she has directed since its inception 32 years ago.

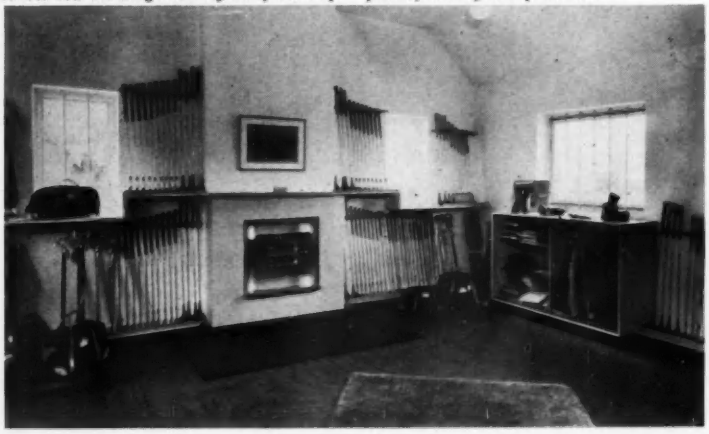
W. N. Duffy

The death was announced recently of William Noel Duffy, publicity manager of Ferranti Ltd. He joined the company in 1932 as chief industrial artist, and was appointed publicity manager in 1951. His executive duties during recent years had restricted the time he could devote to design, but during his period as industrial artist he was responsible for the aesthetic aspect of the design of many of the company's products, including radio sets, electric clocks and fires. He was a modest man and took great care that his own name as designer should be merged in that of the team or firm. He was an accomplished artist, and could give graphic form to his suggestions with an unerring sense of three dimensional draughtsmanship. Conferences with Duffy concerning the design of a radio set or an exhibition stand were always enlivened by his swift pencil drawings.

William Duffy was a prominent member of the Design and Industries Association. He was a Fellow of the Royal Society of Arts and a member of the Society of Industrial Artists.

Golf professional's shop

This illustration shows the interior of the professional's shop at the Wildernesse Golf Club in Kent, which was featured in the April issue of DESIGN. *A. Peacock, the professional, describes how the design and layout of the shop was planned with the convenience of the golfers in mind; he writes "I regard my shop as one of the best equipped and most comfortable of professional shops anywhere". The show-cases, cupboards, shelves and the fire surrounds are of 'Decorplast' laminated plastic, made by Holoplast Ltd.*



Letters

'Design and stress analysis'

SIR: Having recently read the interesting article by L. Bruce Archer on 'Intuition versus Mathematics' (DESIGN June pages 12–19), I question whether it is not unfortunate to suggest that this antithesis is generally valid. The propeller and the crane hook are submitted to strains which are tolerably constant in character, but this is not always the case in a great many products of engineering. Most products of agricultural engineering, for example, have the soil to contend with, variable in composition and moisture, or crops equally variable in weight and maturity. That is why nearly all machines of this kind are the result of a long series of trials and improvements. Few of them would pretend to aesthetic beauty as understood by the layman, or successfully submit to the 'streamlining' which industrial designers now impose on so many machines. One or two like the plough may appear rather sympathetic in shape, because they have evolved through countless experiments and their purpose is simple, but others like the siderake or combine are almost 'Heath Robinson' in outline, yet are masterpieces of design.

I very much doubt if the "art trained industrial designer" would be of much help in tractor design. Harry Ferguson's revolutionary model came through his agricultural-plus-engineering background. The latest trend, which derives I believe from Germany, is for a tractor with nothing but an engine and four wheels on a chassis, on to which mid-mounted implements can be fixed. It is in fact less of a tractor than a moving tool-holder which is just what the cultivator of the earth primarily needs. I am not suggesting that agricultural machines do not stand in constant need of improvement, both in detail and structure. But what art course is going to turn out the designer for that?

N. L. CARRINGTON
Long Acre Farm
Sevenbarrows
Newbury, Berks

The cost of good design

SIR: As a small manufacturer moving towards an irritable middle age, and with a distaste for the purely business side of manufacturing, do please allow me to reply to your correspondent, Mr Winstanley, on his complaint about high prices for articles of good design (DESIGN June page 51).

Allowing for 30 per cent purchase tax, an article retailing at £7 means a trade price of about £4. Mr Winstanley, making the design in question on the kitchen table, put his cost at £2 and is galled at the manufacturer's double price.

First, did Mr Winstanley arrive at his true costs? Did he include finding, buying and fetching his materials, obtaining and maintaining his tools; the cost of rent, rates, lighting, heating?

In his estimate for serious production Mr Winstanley overlooks the cost of jigs and special tools, of prototypes and abandoned prototypes, of experiment and development, of 'bad sellers'. Neither does he allow for packaging and dispatch, correspondence, bookkeeping, accounts and operating purchase tax, the cheques to insurance brokers, accountants' fees, advertising and publicity, commission to agents, discount on bills, necessary travelling and entertaining to get and keep custom. But more: there are strikes, holidays with pay, sickness, accidents, mistakes. Subcontractors default, there is bad workmanship to rectify. Customers fail to pay, others go bankrupt. Goods are damaged in transit, sometimes they are returned as unsuitable, or too late in delivery. Production can unaccountably go awry: gremlins in the paint or in the lathe on a wet Monday morning. There is the cost of seeing and satisfying such officials as factory inspectors,

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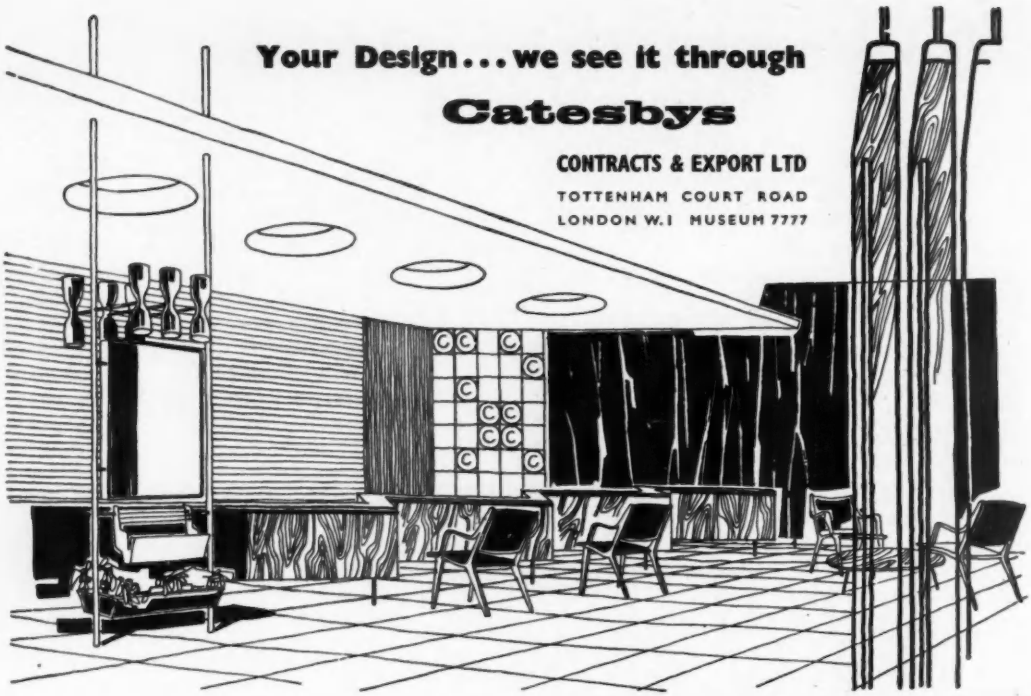

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Model U.22 costs £10.19.6 in 'P' range fabrics—less in other covers.

continued from page 55

sanitary inspectors, fire officers, town and country planning officers and other callers unceasing.

All these activities are vaguely called overheads. They do not arise under 'do-it-yourself' arrangements. The truth is that even the simplest manufactured article, taxed and boxed for wide distribution through retailers, demands a margin approaching twice the cost of materials and labour if the manufacturer is to remain in business.

Finally, it is not always true that a simple shape or design is so very much cheaper to produce than an intricate one. Present-day techniques and machines can produce complicated processes as effortlessly as simple ones and with very little difference in cost.

PETER CUDDON
54 Princess Victoria Street
Clifton, Bristol

'Flexibility in furnishing'

SIR: May I reply briefly to the comments of Howard B. Keith on my article in the August issue of DESIGN? Mr Keith states a case for upholstered furniture with which many will agree, and with which I have no quarrel; but he does not meet my point that loose cushions facilitate changes in decoration because their covers can be easily replaced. There is ample room for both types of furniture, and for both points of view. But Mr Keith accuses me, by implication, of proposing that furniture should be 'of indistinct design'. It is precisely to avoid this that I advocate removable covers, in which, as I have said, "an adventurous choice" becomes possible.

As for standardisation, I merely suggested that fewer structural types would be adequate, whereas the fabrics, if selected independently and made up to order, would offer a *completely unrestricted choice*. Mr Keith finds in this uncontentious proposal the material for a denunciation of 'the equalised, standardised, automatic home'. Since the whole purpose of my article was a plea for flexibility, it is, I hope, clear that on this point we are in complete accord.

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Books

Sun and Shadow, *Marcel Breuer, Longmans Green & Co Ltd,* 50s
This is an adult book, written by an architect who has been practising for some three decades the theory he now writes about. It is a very readable book, written without the incomprehensible jargon of the so called 'modern' theoretician, whose aim seems to be to confuse rather than to enlighten.

Breuer was born in Hungary. He studied at the Bauhaus under Gropius and later became one of his principal collaborators. Like Gropius and Moholy Nagy he left Hitler Germany and spent some years, in the nineteen thirties, in Britain, and then went to the United States in 1937.

He is an architect in every sense. He did not specialise, but tackled the problem of space and structure in all its aspects. He has designed chairs and tables, urban neighbourhoods, houses and department stores, blocks of flats and now the Unesco building in Paris.

'Sun and Shadow' starts off with Breuer's work and projects from 1920 – 1937; the architectural theory is continued in parts two and three; the last part describes the work and projects of his American period.

Of the first period his most outstanding contribution is the invention in 1925 of the tubular chromium plated chair, with its 'sled' support and the continuous 'U' shaped form of his stool table, and in 1929 the cantilever chair. There has been metal furniture before (antique bronze chairs, brass bedsteads, hospital furniture, etc), but modern tubular furniture dates from 1925 – 1929 and is Breuer's invention. Then in 1935, when in Great Britain, he crystalised the laminated plywood furniture in his well-known 'Isokon' series. From his stay in this country originates his development of the 'Miesian' 'slab like' composition which plays such an important part in the later designs, especially of houses.

There is throughout Breuer's work the feeling of modernity, but none of it is modern for modernity's sake; there is no affectation in his work, it is brilliant and down to earth, inevitable and plausible. He understands the materials at his disposal, whether they are natural stone, brick, wood, glass, aluminium or steel, and knows how to use them. He also understands the problems of scale.

This book should become the first reader of all young architects, designers and also of people who want to understand architecture. ERNÖ GOLDFINGER

Shell Moulding (Part Two), *Machinery's Yellow Back Series No. 34a, Machinery Publishing Co Ltd,* 4s 6d
Following any technological innovation comes a period when those not intimately concerned with its development must remain in doubt whether it has become a workable, economic process or to what extent claims for it have been justified. The publication of this small book – the second on this subject in the series – appears to mark an end to such a period.

It is true that it starts up a new hare in the shape of the Fordath D-Process, a method of blowing shell moulds with a mixture of fine sand and quick-drying oil, which promises to reduce mould material cost to about one third of that of conventional shell moulding. But it makes it very clear that shell moulding is being used quite extensively as a normal production process and upon an increasing scale.

The hope that it might economically bridge the gap between sand and die casting seems to have been realised to some extent, but the greatest economic advantage seems to be in the production in quantity of finished moulds by relatively low-skilled labour operating specially designed mould making machines. The illustrations show that a variety of machines is now available, both fully and semi-automatic and catering for rapid quantity, or economic batch production.

The excellent surface qualities promised are evident in many of the photographs, and there are several concrete examples of savings of metal, machining time, and economies in expensive tipped tools. Altogether, an encouraging book for those who were 'waiting to see'. F. C. ASHFORD

An article on shell moulding by F. C. Ashford was published in DESIGN March 1954 pages 28–31 – Editor.

Discovering Embroidery, *Winsome Douglass, Mills and Boon,* 10s 6d
New Crochet, *Jane Koster and Margaret Murray, John Calder,* 25s
There is a growing interest in crafts that can be practised at home, and a spate of 'how to do it' books. Both these technically good books give clear instructions for the craft they describe. The embroidery book shows how people can design for themselves, and the crochet one concentrates on actual instructions for articles to be made. It is a pity that they do not include more modern designs, particularly as there are enough designs of a good modern standard in the crochet book to indicate that this handcraft – which could be practiced while watching television – could add a valuable lightness to the contemporary interior in such accessories as place mats, table napkins and bedspreads. ROSETTA DESBROW

The Book for the Home, *Editor Marjorie Bruce-Milne, Caxton Publishing Company,* £17 12s 6d
These five volumes amount to a complete library on home and family affairs. On equipping and furnishing a home it is practical and helpful and the influence of the CoID is evident and acknowledged.

Addenda

DESIGN July
Page 28: John Drummond and Humphrey Spender are responsible for the work in the print department in the Royal College of Art school of textile design; Louis Le Brocquy is visiting tutor in design to the weaving department.

Page 51: the 'Bruin' self service tea machine was designed by Scott-Ashford Associates Ltd.

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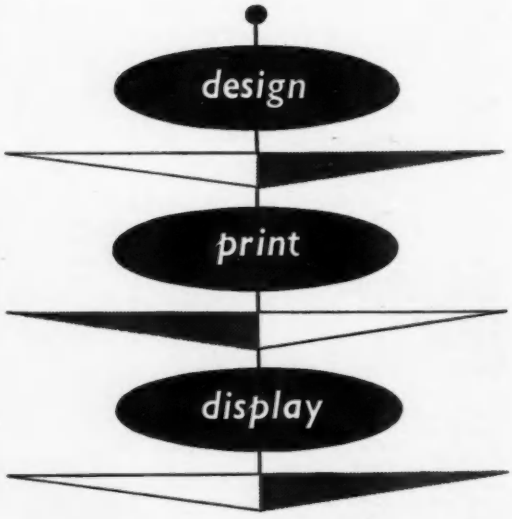

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